THE

DUBLIN QUARTERLY JOURNAL

OF

MEDICAL SCIENCE.

MAY 1, 1864.

PART I.

ORIGINAL COMMUNICATIONS.

ART. X.—*On the Treatment of Acute Rheumatism.* By ROBERT LAW, M.D., Professor of Institutes of Medicine and Clinical Medicine in School of Physic in Ireland, &c.

THAT a remarkable revolution has occurred in the treatment of disease in latter years is a notorious fact; the character of which revolution consists in its being less active, less energetic, than formerly. Some of us have witnessed this change; with others it is matter of medical history. In the records of medicine these latter observe how differently the same diseases were treated formerly from what they are now. A medical student now has but little opportunity of learning the operation of venesection. The question suggests itself—to what is this remarkable change due? Two causes have been assigned for it; and the advocates, on each side, have maintained their opinions with considerable warmth. One cause to which it has been ascribed is, that disease has actually changed its type and character; and the advocates of this opinion see in the altered treatment of disease a prudent accommodation to its altered type and character. The other cause to which it has been attributed is our improved knowledge of disease, and, consequently, our superior competency to treat it; that we have now diagnostic helps and appliances which our predecessors did not

possess; and that, so essential are these to the knowledge of disease, without them they were really groping their way in the dark; and that, therefore, whatever success they may have had in practice was purely accidental. The advocates of this opinion assert, and with great justice, that the stethoscope has enabled us to form such an exact diagnosis of diseases of the chest as it would have been quite impossible to attain to without it. While we admit the inestimable value of the stethoscope in chest diseases, and allow that our predecessors, that had not the advantage of it, could hardly distinguish between bronchitis and pneumonia, and, therefore, may have treated these diseases with less discrimination than they would have done had they known how to make such distinction: still, giving the advocates of this opinion all the advantages they can justly claim for it, that our diagnosis of those diseases with which the stethoscope has to do is more precise now than formerly, and, therefore, our treatment may be reasonably expected to be more successful—persuaded, as we are, of the truth of the maxim—ο αριστα γνους αριστα θεραπευει. We have yet to learn what the stethoscope has done towards improving our diagnosis of other beside chest diseases, or what helps we have towards the diagnosis of those diseases that our predecessors had not; or why the treatment of all diseases should have undergone the same change with those whose nature was as well understood before the change took place as since. But the fact is, the stethoscope was long in use before this change in the treatment of disease had taken place. I can vouch for the practice of Laennec himself, that his knowledge of chest diseases did not make it less active and energetic;[a] and I am confidant that Dr. Alison was as well able to distinguish, by means of the stethoscope, the different diseases of the chest when he treated them actively as he was afterwards when he adopted a mitigated treatment.

However, it is beside our purpose to judge the vexed question, whatever cause may be assigned for it. We merely assert the fact, which is unquestionable, that a great change has taken place in the treatment of disease, and which consists in its being much less active, much less depletory in its character than it was formerly.

[a] We would here observe, while we regard the stethoscope as one of the greatest boons to practical medicine, we must also confess to have seen some injury to result from an exclusive dependence on its information; and when the treatment of the symptoms or of the physiological expression of the lesion would have been a safer practical guide than the signs.

We would ask if all diseases have undergone the same modification of treatment?—if all are less actively treated now than formerly?—and we would answer in the affirmative. May we, then, pronounce upon venesection as an operation that may now be allowed to become obsolete? Although we hardly remember when we directed a patient to be bled, even for those diseases for which we formerly directed bleeding, and that, too, not very sparingly, and for which we confess we feel no remorse of conscience, still we cannot consent to its being altogether laid aside. We still employ it; and we conceive we do so most beneficially in cases of acute rheumatism, although not to the extent that we once did. That is, while we direct the operation as frequently now as we did formerly, we do not allow as large a quantity of blood to be drawn. And that this disease has shared in the altered type of other diseases we infer from the fact that the blood drawn now is often found not to exhibit the marked features of inflammatory blood, before so constant and characteristic of this disease.

It is now nearly twenty years since I recorded my treatment of acute rheumatism as consisting in bleeding once, very rarely twice, and in the exhibition of colchicum; and this treatment I recommended on the grounds that it accomplished a cure within a fortnight, and generally within ten days. I had tried colchicum without bleeding, but did not find it to succeed. Dr. Griffin, in his *Medical Problems*, asks how is acute rheumatism to be treated? And, after passing in review the different methods adopted by different physicians, comments on my treatment in the following terms:—"The colchicum treatment, when pursued in connexion with moderate depletion and an antiphlogistic regimen, yet maintains a reputation which its success in the cure of rheumatic ophthalmia would lead one to anticipate. Dr. Law states that, in his practice, a cure was almost always effected in from ten days to a fortnight, which is much about the duration of the most favourable cases treated by Bouillaud on the antiphlogistic plan. With either physician we believe a larger number required a longer time for their cure, and it was altogether less certain." These remarks were made in a work published in 1843. In the year 1864, I make the same statement, which called forth the learned doctor's doubting observations and misgivings, viz., that the treatment which I pursue in acute rheumatism, consisting in bleeding and in the exhibition of colchicum, effects a cure in from ten days to a fortnight, and with at least as much certainty as any other mode of

treatment I have known to have been adopted. I would observe, that since I published my treatment by bleeding and colchicum I have tested every mode of treatment reported to have had any success in the treatment of this disease, and none has effected a cure within so short a period, or with equal certainty, in my hands. I had no peculiar preference for one mode of treatment more than another beyond what I considered its merits. I believe there are few who bleed in this disease now, at least; and at all times many were deterred from it by a feeling that it favoured, if it did not produce, metastasis. We have ever regarded this as a groundless apprehension. It is at best but theoretical, and would require for its confirmation an amount of statistical information that could not easily be obtained.

We have already observed that we bleed much more sparingly now than we did formerly; still we deem the small bleeding now as essential to the cure as we did the larger bleeding formerly; and in most cases have we found the patient to date his relief from suffering from the time of his being bled—a testimony which his improved expression of countenance generally confirmed. Time has confirmed us in our high estimate of colchicum, both in acute rheumatism and in gout. It, too, has got a bad name in this country, albeit, I conceive, undeservedly. I have always given it with caution, and differ with those who consider its salutary effects due to its action on the bowels. I never exceed two drachms of the wine, or tincture of the seeds, in an eight-ounce mixture, or more than one-grain doses of the acetous extract, repeated through the day at three hours' interval; and I can say I have never found any inconvenience from it, while I have been peculiarly advantageously placed for watching its operation, from my connexion with two hospitals, the greater number of the inmates of one being gouty subjects, while the other has, in general, as large a proportion of cases of acute rheumatism as any other hospital. We feel we ought to vindicate the pretensions of colchicum, as it has been stigmatized, and that by one whose opinion on any point connected with medicine had great influence, and carried great weight with it. I allude to the late Sir Philip Crampton, who, when he was asked why he did not take colchicum to relieve his gout, from which he suffered much, replied that when he asked Sir Astley Cooper why he did not take it, said—"No; he had rather die a natural death."

I shall now annex the short details of a very few cases of acute

rheumatism, to illustrate the treatment I have pursued, and to confirm my assertion of their duration. I have exercised no selection; I have taken them at random, and at various dates:—

Andrew Mahon, aged twenty-two, of fair complexion and middle height, admitted into hospital, January 15, 1858.

Present Phenomena.—He lies on his back in a state of complete helplessness, unable to turn on either side from excessive pains in the wrists, elbows, and shoulder joints, especially the left. The left wrist is very red, swollen, and glossy; skin hot, and bedewed with perspiration; tongue furred; bowels confined; urine acid; pulse 110, full, and incompressible. A soft systolic bellows murmur heard below the left mamma. He had an attack of acute rheumatism five years ago; since then he has felt his heart beat strongly on any unusual exercise. His present illness, which was of four days standing before his admission into hospital, he ascribes to cold. Ordered a mixture containing tincture of the seeds of colchicum, two drachms; sulphate of magnesia, six drachms; carbonate of magnesia, one drachm; tincture of senna, half an ounce; and camphor mixture to make eight ounces. An ounce to be taken every third hour till the bowels are affected.

18th.—Medicine affected his bowels. Pains in the joints not less. Ordered acetous extract of colchicum, four grains; watery extract of opium, two grains, in four pills; one to be taken every third hour.

19th.—Slept better last night, and feels a degree better to-day; but still cannot bear the affected joints to be touched. Repeat the pills of colchicum and opium. Tincture of iodine to be applied to the affected joints.

21st.—No appreciable improvement since last report; countenance expressive of intense suffering. Venesection to eight ounces. To have ten grains of Dover's powder at bed time.

22nd.—A decided improvement. He states his sufferings to be much less, a statement which his improved expression confirms. Slept well last night.

To have a grain of extract of colchicum and one of watery extract of opium every fourth hour.

23rd.—Pains much less; he can raise his arms and move his fingers, which he could not possibly do two days ago; febrile symptoms much abated.

24th.—Pains and swelling have quite gone. There is a slight

effusion into the right knee, and pain in the right great toe. Sleeps well at night. Ordered sulphate of quinine, four grains; acetous extract of colchicum, three grains; watery extract of opium, two grains; in four pills. One every fourth hour. Apply tincture of iodine to right knee.

25th.—Improves daily in the use of his hands, which he can close and open with ease. The right knee and great toe much better. He feels himself so much better that he asked to be allowed to get up, a wish that it was deemed prudent not to comply with.

28th.—Is quite free from pain; is up and walking about the ward. Ordered tincture of the seeds of colchium, one drachm; spirits of nitrous ether, half an ounce; camphor mixture to eight ounces. An ounce to be taken three times a-day. It is now a week since he was bled.

July 3rd.—Pains quite gone; there only remains some stiffness of the affected joints. To have the cinchona mixture and a warm bath.

5th.—Has been out walking these two days, and feels quite well.

10th.—Discharged from hospital perfectly cured. I purposely delayed the bleeding in this case to see the effects of other remedies, holding it in reserve. The relief that followed was most striking and immediate.

James Viney, aged nineteen, porter, of sallow complexion and slight make, admitted into hospital July 6, 1858. He states that he was attacked with pains in his joints a fortnight since, for which he was treated, but without any relief.

Present Phenomena.—The right wrist, elbow, and shoulder extremely painful and swollen. The arm perfectly motionless. Tongue furred; pulse rapid; skin soft and perspiring; bowels confined; urine highly acid; Sp. G. 1·027; nights sleepless. Venesection to eight ounces. To take an ounce of the following every third hour, till the bowels are affected:—Tincture of seeds of colchicum, two drachms; tincture of senna, six drachms; sulphate of magnesia, six drachms; carbonate of magnesia, one drachm; peppermint water to eight ounces; to have, at bed time, twenty-five drops of Battley's solution in an ounce of camphor mixture.

7th.—Pains much relieved; can move his hand; got some sleep last night for the first time for several nights. Tincture of seeds of

colchicum, one drachm; spirits of nitrous ether, three drachms; pennyroyal water to six ounces. An ounce to be taken every third hour.

8th.—Pains less; can shut and open right hand without suffering; complains of slight pain in left shoulder.

10th.—Swelling of the joints quite gone; has free use of right hand and arm; scarcely any pain remains; he sleeps well.

12th.—Complains of slight pains in knees and toes. Decoction of cinchona, seven ounces; tincture of colchicum, a drachm and a-half; spirit of nitrous ether, six drachms and a-half. One ounce to be taken three times a-day; tincture of iodine to be applied to the painful joints.

15th.—Is quite free from pain; is very anxious to be allowed to get up; but not allowed; the ninth day since he was bled.

18th.—Has been free from pain several days; is now allowed to get up.

23rd.—Is quite well, and walks about the grounds.

Eleanor Scilly, aged twenty, unmarried, living at home, admitted into hospital January 5, 1860. Affected with painful swellings of feet, knees, wrists, and elbows; she also complains of pain in her back; the swollen joints are red. Her painful expression bespeaks the intensity of her suffering. Pulse full and quick; skin bathed in perspiration, and emitting a marked acid smell; nights sleepless; no indication of any cardiac affection; bowels confined. She had been seven days ill before she was brought to the hospital, and ascribed her illness to cold. she had a similar attack five years before, which confined her to bed for seven weeks. Tincture of seeds of colchicum, one drachm; tincture of senna and sulphate of magnesia, of each, six drachms; peppermint water to eight ounces; an ounce to be taken every third hour till the bowels are affected; a sleeping draught at bed time, containing Battley's solution, twenty-five drops; spirits of nitrous ether, a drachm and a-half; camphor mixture, one ounce.

6th.—Had some sleep last night; pains and swellings of the joints in *statu quo.* Venesection to eight ounces. To take an ounce every third hour of the following mixture:—Tincture of seeds of colchicum, a drachm and a-half; solution of potash, one drachm; peppermint water to eight ounces; and to have the sleeping draught repeated.

7th.—Pains much relieved; had a much more comfortable night.

9th.—Pains, swelling, and redness have completely left the joints.

11th.—She complains of what she describes as a sense of deadness in her joints. To take an ounce three times a day of a mixture containing tincture of cinchona and tincture of orange peel, of each half an ounce, and infusion of cascarilla to eight ounces.

13th.—She feels quite well to-day, and is allowed to get up.

21st.—Was dismissed the hospital perfectly well this day; she had been quite well for some days, but to prevent risk was not allowed to leave sooner.

Mary Cairns, aged twenty-five, unmarried, a fresh, stout woman, admitted into hospital November 30, 1863, in a most helpless state. Almost all the joints of both the upper and lower extremities very painful and swollen. Considerable effusion into both knee-joints. Pulse 104 and full; no abnormal cardiac murmur. Tongue white, skin soft and perspiring. She caught cold coming from the theatre a week ago; since then she has been labouring under the symptoms which she complains of at present. She had an attack of rheumatism two years ago, but recovered from it completely. Ordered, venesection to eight ounces; to take a tablespoonful, every second hour, of the following mixture:—Battley's solution, one drachm; sesqui-carbonate of ammonia, two scruples; Hoffman's ether, two drachms; camphor mixture, to six ounces. I purposely delayed to prescribe colchicum until I had seen the effect of the bleeding, and preferred giving a stimulating and narcotic mixture to meet the faintness that I anticipated as a probable consequence of the operation.

December 2nd.—Operator failed to obtain blood from the arm; wrists and knees especially painful and swollen. Has a most distressing cough. Bronchial râles through both lungs. Ordered, wine of the seeds of colchicum, one drachm; Battley's solution and wine of ipecacuanha, of each a drachm and a half; syrup of hemidismus, one ounce; camphor mixture, to eight ounces; a tablespoonful to be taken every second hour; tincture of iodine to be applied to the painful joints. This treatment we continued till the 8th, when the following was the report:—Swellings of joints very much reduced, and almost all free from pain, except wrists. Cough quite gone. There is not the slightest tendency to narcotism, notwithstanding the large quantity of opium she has been, and is, taking. To have two tablespoonfuls, every third hour, of the

following mixture:—Wine of seeds of colchicum, one drachm; Battley's solution, a drachm and a half; tincture of orange peel, half an ounce; decoction of cinchona to six ounces.

11th.—Wrists, especially the right, painful. Venesection to eight ounces.

12th.—No difficulty now experienced in performing the operation of venesection. Blood buffed and cupped; feels herself greatly relieved. She improved from day to day until the 17th, when we pronounced her convalescent. The amendment that followed immediately upon her being bled was most striking.

It might be asked why I thought it necessary to resort to bleeding when the condition of the patient appeared to be improving under the treatment I was pursuing. My reason for doing so was because I did not find that she was progressing steadily. She was one day better and another day worse. From the time she was bled there was no interruption to her recovery. This case proved to us, what we have ever observed in acute rheumatism, what an amount of opium the system will bear in this disease without exhibiting any indication of narcotism.

Marianne Hall, aged thirty-four, married, living at home, a large, full, plethoric woman, admitted into Sir Patrick Dun's Hospital, November 18th, 1863, with wrists, elbows, knees, and ankles swollen and very painful; her breathing was very much oppressed; coarse, large crepitus through both lungs posteriorly; face very much congested; rapid excited action of the heart, but no abnormal sound; pulse, 100; tongue moist, and coated with white fur; skin moist; bowels confined Venesection to eight ounces. To take two tablespoonfuls, every third hour, of the following mixture:—Mucilage of gum Arabic, three ounces; wine of seeds of colchicum, one drachm; Battley's solution, one drachm and a-half; cherry-laurel water, two drachms; peppermint water to eight ounces. A purgative enema in the evening.

November 19th.—Blood very much buffed and cupped; is bathed in perspiration. A distinct attrition murmur heard in precordial region; the friction can be plainly felt. Cough most distressing. Ordered—calomel, three grains; acetous extract of colchicum, four grains; ipecacuanha, three grains; antimonial powder and watery extract of opium, of each two grains; to be made into four pills—one to be taken every fourth hour; and to take a tablespoonful, every third hour, of the following mixture:—Mucilage of gum

Arabic, three ounces; wine of ipecacuanha, a drachm; solution of tartar emetic, two drachms; syrup of morphia, one ounce, and water to eight ounces. A blister to be applied to the precordial region, and to be dressed with mercurial ointment; tincture of iodine to be applied to the painful joints.

20th.—Attrition murmur most distinct over entire precordial area; cough very distressing; cannot lie down from sense of suffocation; pulse 100, weak; expression of countenance most anxious; joints still painful and swollen.

21st.—Joints less painful; can move her wrists. Attrition sound very distinct over all precordial region, but different in different parts—much smoother nearer the sternum, and corresponding to the apex, or near the mamma, and rougher towards the left side.

22nd.—All symptoms in *statu quo*, except attrition murmur less rough.

23rd.—Diarrhea. Pills to be discontinued; to have five grains of Dover's powder every fourth hour; rice milk; port wine, four ounces. She steadily improved, and on the 26th there was no trace of the attrition murmur, and all her pains had gone, except in the elbows.

27th.—A slight systolic murmur is heard below the left mamma.

Dec. 2nd.—No cardiac murmur to be heard.

13th.—Convalescent.

Although the treatment pursued in this case did not effect a cure in a fortnight, I still may set up some claim for it, as I know no other method that would have done so much in the same time. The complication of the pulmonic and cardiac affection prevented our pursuing our plan strictly. The mercury, which the precordial affection required, produced a diarrhea, whose treatment interfered with the exhibition of the colchicum, and to this we ascribe the lengthened duration of the case. We would incidentally remark on the interesting phenomena presented by the case. It afforded the most perfect specimen of attrition murmur we had ever heard, and was especially interesting from the variety of sounds heard within the precordial area—in some places smooth and in others rough. It was almost as if we had under our eye the motions of the heart in the pericardium. It reminded us of what we had seen in experiments which we had made on animals as a member of the committee to ascertain the causes of the sounds and motions of the heart, in connexion with the British Association.

How, the organ had a triple motion, viz., a motion of rotation, by which it moved on its axis; a motion from behind forwards, which caused the apex to tilt against the opposite point of the pericardium; and that from apex to base, which produced the to-and-fro sound. All these sounds lost more or less of their roughness from day to day; and even on the same day in some places where there had been more motion the sound was smoother; and in others, where the motion was less, the sound was rougher. It was much smoother to the right side, and corresponding to the apex, and less so corresponding to the left, and towards the base of the organ. We also had an opportunity of observing how the attrition murmur varied with the force of the heart's action and with the pulse, more distinct and marked when the heart's action was stronger—just as in pleural frottement the intensity of the phenomenon is proportionate to the force of respiration. In some cases, where the physical conditions are present, but the respiration is feeble, the phenomenon is either indistinct or altogether absent. This explains how two stethoscopists, equally expert, will differ on the point, its absence or presence depending on the intensity of the respiration at the moment the stethoscope is applied.

In conclusion, I would recapitulate the treatment I have pursued in acute rheumatism, as consisting in a moderate venesection, almost never exceeding eight ounces, and seldom requiring to be repeated; and in the exhibition of colchicum, either in the form of the tincture or the wine of the seeds, of which preparation I do not exceed a drachm in a six-drachm mixture, or the acetous extract in grain doses three or four times daily. When I consider it necessary to exhibit an aperient, which I avoid as much as possible in such cases, from the pain of the motion consequent upon the operation of the medicine, I direct the following mixture:—Tincture of the seeds of colchicum, one drachm; tincture of senna, half an ounce; sulphate of magnesia, six drachms; peppermint water to six ounces. I have found considerable advantage and ease to the patient from combining opium largely with the colchicum. I have already alluded to the fact of how very unsusceptible of the influence of opium persons affected with acute rheumatism are; it is quite remarkable what an amount of it they will bear without being narcotized. I constantly direct a drachm of the tincture of the seeds of colchicum, and a drachm of liquor opii sedativus, in a six-ounce mixture; or a grain of the acetous extract of colchicum and a grain of the watery extract of opium in a pill, three times, or oftener, in the day. Thus have I

combined Dr. Corrigan's narcotic treatment of the disease with my own. The local application to the inflamed joints which I have employed with most advantage is the tincture of iodine, and especially where there is effusion into the joints, which, in most cases, disappears speedily under its use. I have generally observed, where the pericardium or endocardium is about to be affected there is, in general, previously an excited action of the organ, in which case I add digitalis either to the mixture or pill. And when an attrition murmur, or a valvular abnormal sound, indicates pericarditis, or endocarditis, I then combine mercury with the other medicines in the following formula:—Acetous extract of colchicum, four grains; calomel, three grains; watery extract of opium, two grains; powdered digitalis, one grain. To be made into four pills; one to be taken every third hour. I also direct a blister to be applied to the precordial region, and the blistered surface to be dressed with mercurial ointment, in order to bring the system speedily under the influence of this medicine—convinced as I am of its power to effect the absorption of the effused lymph, whether deposited on the pericardium; or on the surface, or in the substance, whether superficially or interstitially in the valves. This is the stage of the disease when medicine can alone cure it.

If, however, as is often the case, the valvular murmur be overlooked, and the heart not be suspected of being involved in the general rheumatic affection, and consequently the suitable treatment not have been directed against the complication, the lymph allowed to run its unhindered pathological course, and in the exercise of its contractile property, permanently damages the valvular apparatus, the consequences of which injury become the objects of future treatment. Many question that it is within the power of medicine to restore the integrity of a valve which has been once diseased, and would rather believe that an abnormal sound which they supposed to indicate organic disease, now from the fact of its ceasing was only functional or independent of structural change. As long as I am satisfied that mercury will promote the absorption of the lymph deposited in iritis;—as long as I believe that a hepatized lung will return to its original condition as soon as the system is brought under the influence of mercury, so long will I cherish the conviction that mercury will do as much for the valves of the heart, which, if not exactly identical in structure with those parts I have alluded to, are at least analogous both in structure, pathological deportment, and therapeutic susceptibilities. And under this

conviction we would explain the ceasing of the abnormal sound by the mercury having removed that which caused it. I have thought it necessary to dwell on this point of cardiac therapeutics, as I deem it of the utmost practical importance. I would also remark on the employment of digitalis in this early stage of pericarditis and of valvular disease. I have already observed how pericarditis is often preceded by an excited action of the organ. At this stage of the disease I consider digitalis is very seasonably employed, and even when lymph is effused. For as our object is now to effect the absorption of the lymph; and as we know the powers of the circulation and absorption are in an inverse relation, and therefore whatever depresses the former increases the latter, the depressing influence of digitalis on the circulation promotes the energy of the absorbents, which is required to remove the lymph. But when all hope of the lymph being removed is at an end, the time is now arrived for laying aside an agent whose direct effort is to bring the heart into a condition most favourable for a result the least to be desired, viz., adhesion of the opposite pericardial surfaces; for of course the less motion there is of the organ the less interruption will there be to this adhesion. So much for the impolicy of continuing the use of digitalis in pericarditis. And are there also objections to continuing its use in the early stage of valvular disease? Here, too, I would employ it, while my object is to remove the lymph by absorption. But I should expect as a consequence of its prolonged use a condition of the circulation—viz., its retardation—which would favour the deposition of lymph on the valves, which lymph would be carried away by the blood if it retained its normal form and velocity. Thus have we often seen in our *post mortem* examinations what are called vegetations on the valves of the heart, which were nothing more than deposits of fibrin which we had no doubt were deposited there just when the circulation was failing and death near at hand.

The remarks which we have just made apply to the earlier stage of valvular disease, not to that stage when the valvular disease is established, and when nature, exerting herself to overcome an obstruction, puts forth increased efforts, which, to a certain extent, have a salutary tendency. The time has now arrived when this medicine, whose direct effect is to depress the action of the heart, is out of place, as antagonizing this salutary effort of nature. It is thus we regard it as ill suited to that increased action of the organ which is so constant in disease of the aortic valves, as also in the regurgitant mitral orifice, which eventuates, in both cases, in

eccentric hypertrophy of the left ventricle. I am convinced the results of the treatment of heart disease would be infinitely more satisfactory than they are if more care were bestowed on distinguishing the different stages of the disease, and on ascertaining and applying the suitable treatment to each stage.

To return to our treatment of rheumatism. When the acute symptoms have passed away, and all fever gone, we now conclude our treatment with bark and hydriodate of potash, or quinine; and when stiffness of joints alone remains, with warm baths. We have ever found that, as long as the disease retains any of its acute character, so long will no benefit be derived from the warm bath; but so far from it the patient generally complains that his pains had been much worse. So that in doubtful cases the effects of the warm bath have served me as a test of the disease as to its having passed from the acute to the chronic stage.

In thus asserting the advantage to be derived from bleeding in acute rheumatism, we limit its advantage to what is confessedly acute rheumatism; for we have heard physicians say that bleeding had not succeeded in cases in which they had employed it; and, when they described the cases, we were not surprised at the failure of which they complained. The cases were such as we doubt much if they can be admitted into the category of acute rheumatism, although the two diseases have at least many local features of resemblence; but the constitutional symptoms are widely different. These cases are such as are designated diffuse inflammation, many of which we have met with as a complication of fever, and which we have described in *The Dublin Medical Journal*, Vol. XII., p. 187, in the following terms:—"We alluded to the occurrence of diffuse inflammation in some cases of this fever; we have had several instances of it, and had reason always to regard it as a most fatal complication. It exhibited itself most commonly in the form of tumefaction of the joints, sometimes with a slight erythematous blush. The knees, ankles, and wrists were the most common seat of this affection; the constitutional symptoms were in general extreme prostration of the powers of the system, delirium, small weak pulse, diarrhea, tympanitic abdomen, and an indescribable anxiety. On examination of the parts affected with inflammation, the tumefied joints generally were found to contain purulent matter of a thin, greenish, unhealthy character; and in some cases the cartilages were either in whole or in part destroyed, leaving the ends of the bones denuded and rough."

We know that cases such as we have thus described have been taken, or mistaken, for cases of acute rheumatism, and have been treated accordingly; we can hardly wonder that success did not attend such treatment. If such cases have any title to be designated rheumatism, they should be designated typhoid or asthenic rheumatism.

In speaking of venesection as an essential element of our treatment, we deny the justice of identifying our treatment with that of Bouillaud who bled *coup sur coup;* while Dr. Griffin's remarks would at least seem to imply this At a time when we exercised less reserve in ordering our patients, affected with rheumatism, to be blooded we never carried it to anything like the length of the distinguished French physician.

We have already observed we gave a fair trial to every other mode of treating the disease, viz., the alkaline treatment, the citric acid treatment, the treatment with opium freely exhibited, the treatment with colchicum alone, and the treatment with bark with hydriodate of potash, and none has approached the plan we have recommended in the shortness of time it required, nor has any been more certain in its results. And time and ample experience have established its pretensions with us.

Art. XI.—*On the Diagnosis and Treatment of Thoracic Aneurism.* By William Moore, M.D., T.C.D., M.R.I.A.; Fellow of the King and Queen's College of Physicians; Physician to Mercer's and Sir P. Dun's Hospitals; Physician to the Institution for Diseases of Children; Lecturer on Practice of Medicine in the Ledwich School of Medicine, &c., &c.

Pulsating Tumours, with and without Bruit; Hemoptysis; Epistaxis; Variations in, and Suppression of, Respiration; Laryngeal Cough; Aphonia; Dysphagia; Contracted Pupil; Ptosis; Alterations in the Muscles of Expression; Heat of Ears; Pustular and Herpetic Eruptions, and Other Symptoms of Nervous Pressure.

The diagnosis of thoracic aneurism has long been a question of vital interest and importance to the physician. Of late many valuable additions have been made to the symptoms and physical

signs of this lesion, but none of more value than those dependent on pressure on the cervical sympathetic, on the nerves of the upper region of the spinal cord, and those traversing the thorax generally. This is specially evidenced by arrest of respiration, variations in the voice, difficulty of swallowing, and neuralgic seizures; whilst the objective effects seem to be specially exemplified in altered conditions of the eye and its appendages, in variations in the muscles of expression, by increased temperature, and, lastly, in pustular and herpetic eruptions on the skin. It is to illustrate these phenomena I adduce the following cases:—

Case I.—John C., aged fifty-seven years, was admitted into Mercer's Hospital, on the 7th of November last. About three weeks before his admission he felt a pain in his right breast, which radiated over the sternum, towards the opposite side, and was aggravated by his lying in any position except the supine. It was intermittent in character, but, during its exacerbation, was very severe. He had been a hard drinker, and suffered from acute rheumatism about ten years ago.

In appearance the patient is healthy; and, on stripping the chest, his muscular development is above the average. He complains of pain between the shoulders and down both arms, of having occasional sensations of fainting, and pain about the precordial region. He has a slight cough; and, since his admission into hospital, he observed his expectoration to be mixed with blood of a dark red hue.

On examination, appreciable dulness can be elicited, on percussion, in the right subclavicular region, close to the sternum; and, on applying the hand over the part, distinct pulsation can be felt. The heart's sounds are normal; but about the junction of the cartilage of the third rib, on the right side, with the sternum, both sounds are louder and more marked than over the precordial region; and over this same space a systolic bruit can be heard, prolonged into both subclavian arteries, but especially into the right. Respiration is natural, and there is no perceptible difference between the radial pulses. He does not complain of dysphagia.

Now, in this case we have many subjective symptoms, and physical signs of thoracic aneurism. Among the former I may mention the neuralgic pains, modified attacks of angina; whilst among the latter, dulness on percussion, distinct pulsation, with systolic bruit and hemoptysis, are the most prominent. Now, as to

what this latter sign is dependent on, in this case, is a question of primary importance. Dr. Gairdner[a] has told us that it is customary to ascribe minor hemorrhages, not to rupture of the sac, but to congestion of the lung from pressure on the veins, and consequent impediment to the return of blood; but he does not think this can be admitted as the chief cause of minor hemorrhages, as, in cases in which pressure on the veins may have occurred, hemorrhage, continuous or repeated at least, is almost always associated with either direct pressure of the sac upon the lung, or upon an ulcerated bronchus; and, again, because some of the most characteristic cases, he has observed, of slight and continuous hemorrhage, have been from aneurisms in which no pressure on the pulmonary veins was possible, but in which there was undoubted pressure upon, and opening of the sac into, the trachea. He believes that blood, in the discharges of a patient affected with aneurism, *generally* indicates the communication of the sac with a mucous membrane; and more especially is this the case in aneurisms accompanied by hemoptysis, if the pressure of the tumour be on the trachea, and if it be unaccompanied by the indications of pulmonary change.

Now, in the case I have just detailed, the hemoptysis was of a deep red character; and, as the most careful examination with the stethoscope failed to detect any inadequacy or difference of respiration in either lung, I am inclined to fall in with the views of Dr. Gairdner, and to attribute the hemorrhage to some communication between the diseased vessel and bronchial tube.

I shall next give the details of a case of aneurism of the thoracic aorta, in which, in addition to hemoptysis, there were other symptoms and physical signs of interest present:—

Case II.—P. S., aged forty-seven, was admitted into Mercer's Hospital, on the 1st of May, 1863.

For the last few years he has been employed as a labourer, having formerly been a servant. About four years ago he was first seized with a hard dry cough, with thick expectoration, difficulty of breathing, and pain in the right side, which, at times, intermitted; and about this date he spat some black blood—which has since re-appeared at intervals. He complained of coldness of the extremities, and of pain down the right arm, if kept in a fixed position

[a] Clinical Medicine. 1862.

for any length of time, or after much use of it—the pain, at times, so severe about the articulation of the humerus that he was obliged to make pressure over it to give him relief. For the last year he has suffered from difficulty in swallowing—not absolute pain, but as if the food stopped half-way down the œsophagus. His voice is subdued, and slightly hoarse. About a month before admission into hospital he was seized with a fluttering sensation of the heart, accompanied with two or three convulsive sobs; which was followed by a shivering fit and sense of sickness; these attacks recurred about every second day.

On examination of the chest, and on making him take a deep inspiration, I found the expansion was not equable, the right scapula being more movable than the left. The left side of the chest is preternaturally resonant, and the stethoscope reveals an absence of respiration over this side, except under the scapula, where a faint respiratory murmuring is audible. Percussion over the right lung, anteriorly, is, perhaps, a shade duller than it should be; but respiration can be heard all over this side. His cough is dry and ringing. The heart's action is slightly irregular, and the pulse in the right wrist is much stronger than that in the left. The anterior and external jugular veins, as well as the veins ramifying over the top of the chest generally, are unduly prominent. The supra-clavicular hollows are preternaturally deep, and there is contraction of both pupils, especially the right, which responded very faintly to the application of belladonna.

This case was designated as one of thoracic aneurism, mainly from the pulmonary lesion, and the patient left Mercer's Hospital somewhat relieved, and, early in June, was admitted into the Richmond Hospital, where he died the day after admission. Dr. Banks was kind enough to show me the pathological conditions present, which consisted of an anuerism, slightly pyriform in shape, which engaged the posterior portion of the ascending angle and transverse portion of the aortic arch. The heart was fatty, but its valves intact. The left lung was diminished in capacity; but, from the brief period which elapsed from the patient's admission into hospital till his death took place, an opportunity was not afforded of observing the relative inadequacy of the respiration in either lung, and, consequently, their pathological condition was not as carefully observed as we could have wished, inasmuch as the respiratory physical signs in this case lent a far more important aid to the diagnosis of the disease than did those of the circulatory.

The hemoptysis in this case was described by the patient himself as being small in amount, and of a *blackish* colour; which, coupled with the absence of respiration over the left lung generally, would lead me to conclude that it was of a pulmonary character, the result of passive engorgement, from long-continued pressure on the left bronchus, gradually bringing about collapse of the cells, and atrophy; whereas in the first case, we had the hemoptysis of a *brighter colour*, and unaccompanied with any evidence of pulmonary inadequacy, And, consequently, as I have already stated, I believe it was due to direct aneurismal communication with the bronchus. The dysphagia was caused by either indirect pressure on the œsophagus, for the left bronchus was pressed upon, and this, in its turn, would entail pressure on the œsophagus and thoracic duct; or the dysphagia might be in great measure, if not wholly, due to pressure on the pneumo-gastric nerve. Again, the aphonia can be readily accounted for, by pressure on the recurrent laryngeal nerve, which would thus paralyze the arytenoid muscles and those of the larynx generally.

As regards the contraction of the pupil, this phenomenon was so markedly exemplified in the following case, that I will reserve its special consideration till the following details are before us, some of which I have already alluded to in a clinical lecture on thoracic aneurism,[a] whilst the case was under observation in an early stage. The case was one in which difficulty of breathing, ringing, laryngeal, spasmodic cough, loss of uniform configuration of the thorax, by falling in of left side, hemoptysis, dysphagia, neuralgic pains, contracted pupils, more especially the right; persistent pustular and herpetic eruptions over the top of the chest, and between the scapulæ, were well exemplified.

Case III.—M. L., was admitted into Mercer's Hospital, in the month of October, 1862; a shoemaker by trade, he had been subjected to hard work and close confinement. He complained of distress of breathing, at times almost amounting to suffocation; of difficulty of swallowing, and severe pains radiating over the shoulders and down the back. He had a hard, ringing, laryngeal cough, with stridor, and the imperfection of voice well nigh amounted to aphonia. There was manifest contraction of both pupils, more especially of the right, which scarcely exceeded a pin head in size.

[a] The Medical Press of 28th January, 1863.

On stripping the patient, percussion gave dulness over the top of the sternum, and particularly over the scapular spines, whilst the stethoscope revealed a second centre of pulsation over the top of the sternum, louder than that heard over the precordial region, but unaccompanied with bruit; the respiration of the left lung was certainly more feeble than that of the right. The veins over the top of the sternum were more visible than normal, and a fulness about the junction of the first rib with the sternum, on the left side was appreciable; the left radial pulse could scarcely be felt. Things continued without much variation till the 1st May, 1863, when, on stripping the patient, the falling in of the left side of the thorax, generally, became remarkable, more especially posteriorly, under the point of the left scapula. This falling in of the side differed from that usually observed after the removal of pleural fluid; it was not so oblique laterally, more a falling in of the side generally, from the spinal column round to the sternal articulation. Percussion in this case yielded rather a clear sound. There was deficient respiration (well nigh amounting to absence) over this side generally, and its measurement was an inch and a-quarter less than that of the right. The patient has latterly had hemoptysis, of rusty red colour, but not so dark or prune-juice as the sputa of pneumonia. As regards the other physical signs they presented little variation. He has suffered from repeated attacks of angina, and his respiration, at times, is distressing in the extreme; in addition, he has latterly been harassed with boils and herpetic eruptions, over the upper part of the chest and between the scapulæ. In the month of July this case terminated fatally by laryngeal suffocation; but, I regret to add, we were debarred from satisfying ourselves as to the extent of the lesion. But if I might be allowed to offer an opinion as to the situation of the aneurism, I should say it involved the transverse and descending angle of the arch.

Now I think this case comprised an unusual number of interesting phases, among which I may mention more especially the *pulmonary lesion*, evidenced by hemoptysis, absence of respiration, and general falling in of the side; the *contracted state of the pupils;* and lastly, the *persistence of pustular and herpetic eruptions* over the top of the chest and scapulæ.

The hemoptysis was, I think, manifestly due to pulmonary engorgement, the result of pressure on the left bronchus, which had given rise to gradual collapse and atrophy of the lung, and hence the symmetrical loss of the side. As to the contraction of the

pupil, which was so well marked in this case, the influence of pressure on the cervical sympathethic, and its effects on the eye and its appendages, is daily becoming more appreciated, and better understood. P. du Petit, about the year 1712, was one of the first, if not the first, to recognize this phenomenon, since which date many experimenters have appeared in the field. Dufuy and Breschet, like Petit, remarked that contraction of the pupil, convergent strabismus, ptosis and conjunctivitis followed division of the sympathetic.[a] Budge and Waller, in 1841, proved by experiments that the sympathetic branches which influence the iris, do not originate from the cervical ganglia, but that they take their origin from the spinal cord, passing through the spinal nerves to the sympathetic cervical ganglia. By tracing these nerves they found a region where irritation produced no results; and by removing portions of the cervical cord, bit by bit, and observing its influence on the pupils, they went on to prove, that in some animals, the branches which control the movements of the iris, were intimately related with that part of the spinal marrow itself as a centre, which extends from the sixth cervical to the fourth dorsal vertebra, and that in this space any galvanic stimulus applied, if not in excess, produced dilated pupil. To this portion of the cord they gave the name of the cilio-spinal region. Again, Valentin's experiments led him to conclude that the pupil is supplied from a double nervous source, the dilating fibres of the iris being furnished from the spinal system through the sympathetic, whilst the circular fibres are controlled by the third cranial nerve; hence section or pressure on the sympathetic paralyzes the dilating fibres, leaving the pupil at the mercy of the third nerve, and hence contraction.

Dr. Reid found pressure on the cervical sympathetic give rise to contracted pupil, which disappeared *pari passu* with the removal of the pressure.

Of late many observers have contributed cases, bearing out the realization of these interesting nervous phenomena, in connexion with the diagnosis of thoracic aneurism, and intra-thoracic tumours, among whom I may mention, Dr. M'Donnell of Montreal, Dr. Banks of this city, Drs. Seaton, Reid, Gairdner, Walsh, and others; but by far the most instructive paper on this subject, in a clinical point of view, which I have had an opportunity of seeing, is that

[a] Vierordt's Archiv. für Physiol. Heilkunde, 1852.

of Dr. Ogle,[a] of St. George's Hospital, "On the Influence of the Cervical Portions of the Sympathetic Nerve and Spinal Cord upon the Eye and its Appendages;" a paper at once replete with intense interest and instruction. Applying these nervous phases to the cases I have above detailed, we can reasonably conclude that the contraction of the pupil in both instances was due to pressure on the cervical sympathetic. In the second case, from the situation of the aneurism, both inferior cervical ganglia must have been pressed upon, as indeed it is probable the same existed in the third case; but in both the right inferior cervical ganglia seem to have suffered most, if we are to judge by the more decided contraction of the right pupils.

I have mentioned the fact of boils and herpetic eruptions having prevailed in the third case, more particularly as the disease advanced; and I think this condition is deserving of more attention, in a diagnostic point of view, than at first sight we would be disposed to give it; inasmuch as this is the second instance in which I have seen persistent herpetic rashes present where intra-thoracic tumours existed. One of these cases is still under my observation.

CASE IV.—A shoemaker, aged 44; he suffered from neuralgic pains over the top of the chest and sternum, and from a troublesome ringing cough; and also from dysphagia, which has disappeared. He complained of tightness of the skin of the left half of the face; of tingling sensations over the same half, and of intense heat of both ears, at times. There was ptosis of the left eyelid, and drooping of the left angle of the mouth. The left pupil was more contracted than the right, and a herpetic patch covered the left half of the lower lip and chin, and other patches were present over the top of the chest and shoulders. The superficial veins over the upper part of the chest were remarkable; and a prominent tumour extended from the right clavicular articulation across the sternum, for more than an inch under the left clavicle, over which tumour a second centre of pulsation could be felt. The left radial pulse was indistinct, and the respiration was especially feeble over the left lung. In the month of May last he first had an attack of epistaxis, which gave him relief; and in October and November it returned again. At the end of this month the semi-ptosis of the left lid, deformity of the angle of the mouth, herpetic eruption, ringing

[a] Published in the forty-first volume of the Medico-Chirurgical Transactions.

tracheal cough, partial aphonia, and visible tumour still were present, and the epistaxis had returned; but the contraction of the pupil, the tightness of the muscles of half the face, and the heat of the ears had disappeared, at least to a great extent.

On the 19th January last I examined this patient, when the following changes had taken place:—There was no perceptible difference in the size of either pupil; the tightness of the muscles of the left half of the face had almost disappeared, as had also the heat of the ears; faint effort at ptosis of the upper lid was still present, and the angle of the mouth drooped a little. The herpetic eruption had disappeared from the chin and top of the chest—the first time the patient states for the last ten years;[a] the tumour was not so prominent. The greatest prominence still existed over the junction of the first and second rib, with the sternum on the right side; but the pulsation over the tumour was still very decided. The radial pulses were nearly equable; nor was the cough so distressing; the dysphagia had not returned.

Now these are features of no ordinary interest; but these remissions have not occurred for the first time in this case, as the patient tells me that in the Autumn of 1861, while in Sir Patrick Dun's Hospital, under Dr. H. Kennedy's care, he suffered from difficulty of swallowing and respiration, and that these distressing symptoms were then relieved by the appearance of a large tumour, soft and pulsating, which suddenly appeared at the top of the chest, to the left side. At this time he lost his voice, which was restored to him gradually as the external tumour lessened, which it did after the course of a month; the greatest prominence remaining on the right side.

Now in this case we have contracted pupil which could be accounted for as in Lalor's case; but, in addition, we meet with tension of the muscles of one half of the face, deformity of the angle of the mouth, and occasionally heat of the ears. Brown-Sequard, Bernard, and others, have shown the influence of the "sympathetic" on the modification of sensibility and vascularity, and of the temperature of the external parts supplied by it. And Bernard, in addition, ascertained that division of the cervical sympathetic induced an increased temperature within the cerebral hemisphere on the side in which section of the nerve was made, and that the blood in the jugular vein of the same side was rendered warmer. In

[a] However, it has again appeared.

addition to modifications of temperature and vascularity, altered condition of muscular parts may result from interference with the same, as we see exemplified in the case before us by tightness of the muscles of one half of the face, and deformity of the angle of the mouth.

Dr. M'Veagh, of this city, has been kind enough to furnish me with the notes of a case of thoracic aneurism, which was under Mr. Hutton's care in the Richmond Hospital; it engaged the transverse portion of the arch of the aorta, and till it terminated fatally the patient was afflicted with cutaneous irritation and furuncles over various parts of the body. MM. Dupuy and Breschet, in experiments made upon the cervical sympathetic in the horse, observed a dryness and adherence of the skin, increased temperature of the ears, with augmented perspiration and eruption upon the skin.

Dr. von Barensprung in a paper[a] "On Herpes, especially with Reference to its Connexion with Affections of the Nervous System," when considering the topography of the disease, and bearing in mind its dependence upon derangements of internal organs, shows that the eruption follows the course of various nerves.

He considers the etiology of the disease at considerable length, and determines that in the skin, inflammation possessing as it does a typical form, and limited to a peripheric distribution of certain cerebral and special nerves or their branches, the source of the inflammation is not external, nor in the blood, but that it operates through the nerves; and, in fact, depends upon their abnormal irritation. He thinks it cannot have a central origin, for the herpes is usually confined to one side of the body, following the track of one or two nerves; nor can it spring from a cerebral source, for then it would be frequently extended to the whole of one half of the body; nor from the spinal marrow, for then it would be, as a rule, symmetrical; he locates the point of irritation in the posterior root of the spinal nerves; inasmuch as the affection is so frequently associated with exalted sensibility. Hence it is to the posterior roots of the spinal nerves and to the spinal ganglia which are connected with these roots, that we must look for an explanation of this phenomenon.

Dr. von Barensprung quotes cases to show that a peripheric irritation of a nerve containing ganglion fibres may cause a limited

[a] Annalen des Charité-Kranken hausen zur Berlin, Bd. ix., 1861, and in the Medico-Chirurg. Review of Jan., 1862.

eruption of herpetic vesicles; and to this latter class the herpes in the case under consideration would seem to be more especially referable, inasmuch as an aneurism or other tumour, pressing on the periphery of any of the spinal nerves, connected as they are known to be with the sympathetic in the thorax, would be capable of setting up such a cutaneous irritation as I have described in these two cases; but this explanation, for the present, I must promulgate with reservation, and content myself with alluding to the presence of the eruption, for the sake of its diagnostic value, which, taken in conjunction with other negative and obscure physical signs and symptoms, might be the means, in some cases, of lending collateral aid in the diagnosis of this too frequently latent affection.

But I think, in the present instance, the fact of the intermissions in the separate symptoms which have occurred, now for the second time, is most interesting. On the first occasion, the disappearance of the dysphagia and distressing dyspnea is endorsed by the patient's own statement; but it is not possible to say how the nervous symptoms, which afterwards were so marked, behaved, or whether at that date they were present at all. Certain it is that now they are mitigated, to say the least of them; and many of them may be said to have vanished. These disappearances of important phases and well marked collateral symptoms, and their being replaced by others, might naturally mislead an observer, and tend to make him sceptical in his diagnosis; but these variations are traceable to some alteration in the size and situation of the tumour; and in this case they are evidently due to change in its direction; this is more especially exemplified in the general change in the appearance of the face, which has comparatively lost its lividity; which, from time to time, I have no doubt, was relieved by the recurring attacks of epistaxis; these have not returned for some time, owing, no doubt, to the relief from pressure on the superior cava or some other tributary venous trunk.

A prominent tumour existed in the fourth case; the most marked bulging at the right edge of the sternum, corresponding to the first division of the arch; this tumour is pulsatile and synchronous with the systole of the heart. Single systolic pulsation was also present in the first and third cases; but no tumour was visible. Only in one (the first) of the four cases detailed, was murmur to be heard, and that was single and systolic. These bruits seem to me to vary as regards their rhythm—the different periods of the disease and the regions they are heard over; thus, not long ago,

I saw a case of subclavian aneurism in its third stage, which tilted up the head of the listener, and over which tumour a loud whirring systolic bruit was audible; tracing this bruit towards the innominata, its intensity was much diminished, and about the bifurcation it assumed a double or continuous character. It is not my intention to enter on the subject of the mechanism of aneurismal murmurs, on the present occasion, but this much I may say, that their presence and intensity must depend on a variety of essential conditions. Thus, to have such physical signs, it is necessary that the sac should be capable of expansion; that it should be well nigh empty; that its communication with the vessel should neither be too wide or too narrow; that the heart's action should be strong. Such a combination of circumstances being essential for the production of murmurs, it is not surprising, that single and double bruits are so seldom associated with thoracic aneurism, far less frequently than is generally supposed, at least as far as my experience goes.

As regards the treatment of thoracic anuerism, it is generally exhibited, more with the view of relieving the collateral affections—as bronchitis, angina, laryngeal suffocation, &c.—than with the view of bringing about amelioration of the primary disease. General bleeding, as recommended by Valsalva, may now be said to be exploded, as it is wholly unsupported by theory; but occasional leeching over the tumour may be advisable. Purgatives and diuretics are useful, inasmuch as they prevent an excess of the watery constituents of the circulating fluid; whilst sedatives—as digitalis, acetate of lead, hydrocyanic acid, belladonna—by lessening the heart's action, tend to coagulation. With the same intention iodide of potassium has been recently recommended by Dr. Roberts, of Manchester, and I have given it a trial in two cases—in one of which (the fourth) the tumour has decidedly lessened; but whether it is due to the physiological action of the iodide or mechanical shifting of the sac, I cannot positively say. Cold applications, as ice or iced poultices, often afford relief and permit coagulation; but they must be cautiously applied, as their refrigerent action, too long continued, becomes injurious. Where the neuralgic pains have been very severe, chloroform I have found the most useful local application, either pure or combined with camphor liniment; and, where the laryngeal stridor and dyspnea have been intense, as in the third case, blisters, applied over the cilio-spinal region, have afforded relief. This treatment I find recommended by Dr. Stokes, in his book on *Diseases of the Heart and Great Vessels*, where he

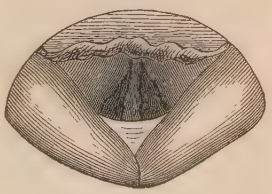
mentions a case in which issues over the spine, where erosion of the vertebræ was accompanied with tenderness on pressure, freed the patient from pain, cough, and dysphagia, so long as they discharged freely. On two occasions the dryness of the issues was followed by great suffering, which was again removed by their re-establishment. In extreme cases of laryngeal distress tracheotomy has been advocated, but, for so far, with no very encouraging results.

The diet of a patient affected with thoracic anuerism should be liberal, not stimulating; but this golden rule cannot be strictly carried out, should angina or the symptoms of a weak heart manifest themselves.

Art. XII.—*Notes in Medicine and Surgery.* By Philip Crampton Smyly, M.D., F.R.C.S.I., Surgeon to the Meath Hospital, &c.

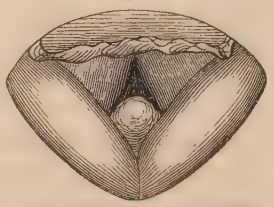
The anomalous changes which the voice undergoes in the course of phthisis laryngea, have ever been a source of speculation to the practical physician. The total loss of voice which sometimes accompanies disease of the lungs without any special lesion being discoverable in the larynx; the severe laryngeal symptoms which may be present with slight modification of the voice; and above all, the unexpected return of the voice after the aphonia had existed for a length of time; and lastly, the occasional power of sounding a single word in a sentence; the aphonia otherwise being total. A case lately came under my observation in which the power of sounding a single word, perhaps once or twice in the course of the day, was very well marked. The patient had a very chronic form of phthisis of the lungs. Twelve years since he suffered from aphonia after a slight cold. He recovered his voice in about eighteen months. It remained, however, husky and weak. He could, however, give a shout and recite. Last November, three years, he again caught cold, and when reciting felt something give way in the throat. Ever since the aphonia has been complete, except now and then, when he sounds a word or two unexpectedly. Some thick mucus is then expectorated, and the aphonia is as complete as before. Fig No. 1 represents the condition of the larynx.

Fig. 1.



The arytenoids and aryteno epiglottic folds form two œdematous masses at either side of the larynx; the epiglottis forms the base of a triangle. Its edge is notched and the cartilage appears shortened. The vocal cords are quite deficient posteriorly; but at their insertion at the base of the epiglottis two thick fleshy masses represent them. When an effort to say "ah" is made these close slightly, but leave a large space behind through which the air escapes. On the inside of the thyroid the mucous membrane is thickened and dusky. At its extremity is a very brilliant white structure, probably a portion of the crycoid cartilage exposed. While I was watching the larynx in the laryngeal mirror, I saw a pellet of mucus in the cavity, coming higher and higher at each expiration, until at last it filled the space as represented in Fig. 2. To my great surprise the "ah" was sounded distinctly, the patient coughed, and the pellet was expectorated. Had the destruction of the vocal cords not been so extensive the pellet of mucus might have been retained longer, and thus several words might have been sounded in succession. May not the more permanent restoration of the voice be produced in a somewhat similar manner; the deficiency left by the destruction of a portion of the vocal cords being filled up by œdema of the neighbouring parts—the aphonia again returning as the ulceration extends beyond the supplimenting swelling.

Fig. 2.



ANTHRAX TREATED BY PRESSURE.

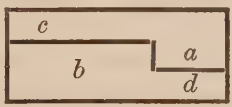
In the last number of the *Quarterly Journal* Mr. Collis has a paper on the subject of the treatment of anthrax by pressure. He alludes to two cases of mine, one of which I treated by compression, the other by incision. The result was so much in favour of pressure that I have not since cut an anthrax; and though I have had several both in the hospital, in the dispensary, and in private, I have not observed the slightest tendency to spread after the plaster had been applied.

Two cases in particular prove the very great advantages of the treatment by pressure. One was a boy about twenty-five years of age. He had an anthrax on the back of his neck about five inches from above downwards, and about four inches across. I could not take him into hospital as there was no vacancy. I applied pressure,

as I will presently describe, and told him to come again next day when I would take him into the hospital. He came next day, but said that the plaster had so completely relieved the pain that he had been able to go to his work; and that he had only come to get on fresh plasters, as the first had become loose. On removing the dressing, the anthrax was found very much diminished in size. The patient said that the discharge through the opening left in the dressing was "tremendous." The anthrax was cured in about ten days, leaving a cicatrix about the size of a sixpence.

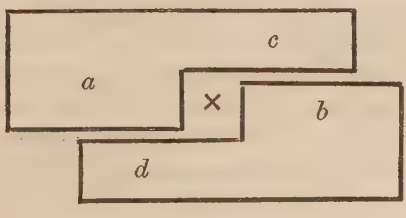
The second case was that of a person rather advanced in life, one lung phthisical, and advanced softening of the brain. She got an anthrax on the back of her neck, three inches in diameter. When first seen it was of a livid bluish colour, brawney, and having several openings, discharging a thin unhealthy pus. The sticking-plaster was applied so as to exert very firm pressure; next day there was but one opening in the centre discharging freely; the plasters had become loose from the diminished size of the anthrax. The patient recovered in eight days, was only one day confined to bed, and has been able to take walking exercise nearly every day. Had this anthrax been cut I have no doubt that death would have been the result.

The mode of applying the pressure is very simple. When in Vienna I saw Professor Jager bring a split eyelid together by two pieces of plaster cut thus:—

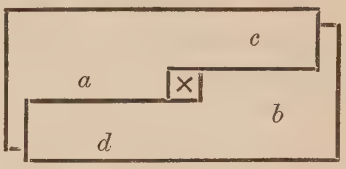


a and *b* were attached to either side of the cut; *c* and *d* were then drawn towards each other, *a* fastened so that *c* overlapped the upper part of *b*, and *d* overlapped the lower part of *a*, thus:— I thought that pressure could be most effectually applied to boils, &c., by cutting sticking plaster in this way.

The two broad ends (*a* and *b*) are fixed to the skin at either side of the part to be compressed. The two narrow ends are then



drawn until they correspond nearly with the margin of the ends. They are drawn diagonally at the same time, so that the square × is diminished thus:—



Mr. M. H. Collis now always applies pressure to anthrax in this way, and has found it very useful in the treatment of cancerous tumours.

ART. XIII.—*The Hebrew, Medieval, and Modern Leprosies Compared.* By T. W. BELCHER, M.A., M.D., T.C.D., &c.

IN connexion with the medieval and modern diseases commonly called leprosies, I propose to make some observations on the leprosy of the Hebrews, chiefly by way of endeavouring to decide what that disease really was, and to discuss its contagious or non-contagious nature.

Apart from all theological considerations, this country owes much to the great Hebrew legislator, Moses. His institutes largely pervade our common and statute laws; and the spirit of sanitary precaution of our own times seems, in some instances, but a faint echo of the far-seeing enactments of that great law-giver.

In our own profession, and in that sacred calling which alone can claim a higher and holier importance, many have taken in hand to discuss this disease; and it is because, in my humble view, the more modern writers have made confusion worse confounded, that I venture to propose some considerations respecting a confessedly difficult and intricate subject.

In the book of *Leviticus*, chap. xiii., we find an exact description of three varieties of leprosy; and, although the Arabic and Greek writers notice all these, yet it is difficult to identify these varieties with their descriptions. This proceeds, in a great measure, from the use of synonyms, and inexact renderings of them from one language into another, from the various terms applied in successive ages to the same diseases, and from variations and total changes in the meaning of some of them.

Whatever this leprosy may have really been, we know that the Hebrews were subject to it in Egypt, where, according to Prosper Alpinus, it largely prevailed; that they continued subject to it in Judæa, and that it probably remained as an endemic so long as the Jewish polity lasted—that is, to the destruction of Jerusalem—when the Jewish nation ceased to have a political existence. The whole legislative and historical tenor of the Old and New Testaments leads us to infer this. Strabo, following Manetho, asserts that leprosy was communicated to the Egyptians by the Hebrews; while other historians, equally hostile in feeling to the Jews—such as Justin Trogus[a], and Tacitus[b]—join with the former in asserting that they were expelled from Egypt lest their endemic leprosy should overspread the country. Notwithstanding these authorities, there is no doubt that their statements are incorrect;[c] and Josephus plainly shows (*Antiq.*, lib. iii., cap. xi., sec. 4) them to have arisen from narrow prejudice. When, a little further on, we discuss the nature of this disease, it will appear that the peculiar employments and hardships to which the Hebrews were subject during the most oppressive stage of their Egyptian bondage, rendered them very liable to contract it; and that, even after their departure from Egypt, they retained a general predisposition not only to tsorat, or malignant leprosy, but to other cutaneous affections which had a tendency to terminate in some variety of that tsorat, according to personal habit or idiosyncrasy.

Following the Hebrew original, we find that Moses speaks of three varieties of leprosy, attaching to all the generic term berat, or bright spot (בהרת), and divides them into boak (בהק), or dull white, and two varieties of tsorat (צרעת), or malignant disease, viz., berat cecha (בהרת־כהה), or dusky berat, and berat lebena (בהרת־לבנה), or bright white berat. Boak was pronounced clean or non-contagious, while berat cecha and berat lebena were pronounced unclean, and ensured the exclusion of their subjects from Hebrew society.

The Arabians and Greeks confounded the terms and symptoms, sometimes deeming leprosy contagious and sometimes not. Boak is still known by the same name, and with the same meaning, by the Arabians. Berat lebena they called beras bejas,

[a] Hist., lib. xxxvi., c. 2.

[b] Tacit. Hist., lib. v., *ab initio.*

[c] Study of Medicine, by Dr. Mason Good, Vol. v., p. 600. In this paper it is to the third edition, by Cooper, that reference is made.

and berat cecha they termed beras asved.[a] The Greeks called boak λέπρα αλφος; berat cecha, λέπρα μέλας; and berat lebena, λὲπρα λευκὴ. In course of time the Arabians used boak and beras indiscriminately, confounding their symptoms and qualities, and further added a term of wider extent—kouba—meaning scaly eruptions of every kind, even those not included under our term lepidosis. The Greeks borrowed their ψώρα—whence our word *sore*—from the Hebrew tsorat (צרעת), but it soon gave way to the older term λέπρα, which is a synonym of the Hebrew generic term berat. Ψώρα, in its secondary sense, was used to express scaly eruptions generally; sometimes the scales of leprosy, then the scaly state of the skin which accompanies scabies (psora), and, lastly, the scaly state of chronic eczema.[b] Thus, from denoting a malignant, it came to mean a mild form of disease. The LXX. use the generic term lepra indiscriminately. For example, the Hebrew tells us that the priest shall examine the berat, or general morbid appearance, and if it has the specific marks which are accurately laid down it is a tsorat, or malignant disease—either berat cecha or berat lebena. The Greek, confounding the generic and specific terms, reads:—"The priest shall examine the λέπρα, and if it have the specific marks it is a λεπρα."

Leprosy was known to the Latins; and Celsus, who collected the works of the principal Greek medical writers in the time of Augustus Cæsar, thus describes the leprous diseases:—"There are three species of it (the vitiligo). It is named ἄλφος when it is of a white colour, with some degree of roughness, and is not continuous, but appears as if some little drops were dispersed here and there. Sometimes it spreads wider, but with certain intermissions or discontinuities. The μελας differs from this in colour, because it is black, and like a shadow, but in other circumstances they agree. The λευκη has some similitude with the ἄλφος, but it has more of the white, and runs in deeper, and in it the hairs are white, and like down. All these spread themselves, but in some persons quicker, in others slower. The alphos and melas come on and go off some people at different times, but the leuce does not easily quit the patient whom it has seized."[c] The vitiligo of Celsus seems to be substantially the Hebrew berat; and, following the Greek, he has alphos, melas, and leuce—the boak, berat cecha, and berat lebena of

[a] Mason Good, *in loc.*

[b] Erasmus Wilson's Skin Diseases, 4th ed., p. 295.

[c] See the Latin original—De Medicina, lib. v., cap. xxviii., sec. 19.

the Hebrew. Rhenferdius, an old medical writer, in his treatise, "De Leprâ Cutis Hebræorum" (to be found in Meuschen's *Nov. Test. ex Talm.*, illustr., pp. 1057, &c., classed D.dd. 32, in library T.C.D.), considers the leprosy of the Greeks and Latins to have been a kind of scaly scabies or impetigo, and plainly proves, by numerous quotations from ancient authors, Jewish and others, that lepra Hebræorum was a scaly disease denoted by every name implying cuticular eruption, such as scabies, impetigo, plaga (see *Deut.* xvii., v. 8; xxiv., 8; and *Lev.* xxi., 20), and porrigo. While giving a classification of his own, and enumerating classifications of several Talmudists, he also asserts that one pathognomonic sign—albedo præternaturalis—was common to all, and the more intense or less important depended on a difference in species. This he abundantly proves from the books of Maimonides, and several other Talmudists, remarking that "pilus albus, diffusio, et vivacitas" were the distinguishing signs observed by all Jews to mark the different varieties. With Maimonides he asserts:—"Lepram cutis esse affectum cutis, externæ, præternaturalem, quo naturalis ejus color in albedinem majorem transit, cum, vel sine, pilorum mutatione, diffusione, vivacitate." He says that λέπρα (the Greek disease), "præternaturalis corporum albedo non longe recedit ab illa Maimonidis laudata;" and that vitiligo of Celsus, "proxime accedere ad lepram Hebræorum," that it is the alphos and leuce of the Greeks, and the lepra in *Matt.* viii. As to the identity of lepra Hebræorum and vitiligo, although he previously said they were very nearly identical (proxime accedere) yet he afterwards observes:—"Precipua conveniunt signa, ita ut si non eadem, sane non multum diversa sit vitiligo a lepra; quamvis potius cum כהק convenire putem, quod itidem albicantem habet speciem." He thinks it may be concluded that Hebrew leprosy "ad vitiliginem quidem in plurimis accedere, non tamen in omnibus, adeoque pro diversa affectu esse reputandum."

Dr. Mason Good thinks the vitiligo of Celsus, and its varieties, approach nearest to that of Moses of any he is acquainted with; and, although the learned Rhenferdius draws an obscure distinction, yet I think the opinion of Dr. Good is correct, and that a slight variety in intensity, or one resulting from climate or from constitutional causes, will account for the opinion of Rhenferdius; for it is not easy to see what the latter means when he says that vitiligo is the alphos and leuce of the Greeks and the lepra of S. Matthew, while he afterwards thinks it rather agrees with bohaq, which is the

same alphos of the Greeks and of Celsus, and one of the varieties of the berat of Moses.

We have, then, following Mason Good's classification, these three varieties of the berat of Moses—the λέπρα of the LXX., the *lepra* of the Vulgate, and the *vitiligo* of Celsus:—

α Albida. Boak[a] (בהק).—*Heb.* Boak.—*Arab.* Alphos Αλφος.—*Gr.*—Cels. Common, or dull white leprosy.	Scales, glabrous, dull white, circular, and definite; preceded by reddish and glossy elevations of the skin; surrounded by a dry, red, and slightly elevated border; scattered, sometimes confluent; irregularly exfoliating and reproduced; rarely found on the face; not contagious.
β Nigricans. Berat cecha.—*Hebr.* (כחרת־כהה) Beras asved.—*Arab.* Melas (Μέλας)—*Gr.* Cels. Dusky, or black leprosy.	Scales, glabrous, dusky, or livid, without central depression; patches increasing in size; scattered, or confluent; unclean.
γ Candida. Berat lebena.—*Hebr.* (כחרת־לבנה) Beras bejas.—*Arab.* Leuce (Λευκη).—*Gr.*—Cels. Bright white leprosy.	Scales on an elevated base; glossy white, with a deep central depression; encircled with a red border; patches increasing in size; hairs on the patches, white or hoary; diffused over the body; unclean.

The first of these varieties (boak) has been regarded as a constitutional affection by most moderns. It was not so regarded by the best Greek and Arabian physicians, nor by Willan, nor by Dr. Mason Good. The last authority thinks it rarely, if ever, affects the constitution, and illustrates his point from the Levitical code and from Celsus. The Jewish law regarded it as of little consequence, as superficial, cutaneous, and not demanding social separation:—"If a man or a woman have in the skin of their flesh a berat, or white berat, then the priest shall look; and, behold, if the berat in the skin of the flesh be dull, it is a boak growing in the skin; [illegible] is clean" (*Lev.* xiii., 38-39). Celsus observes:—"The

[a] Lev. xiii., 38-39.

vitiligo, though it brings no danger, is nevertheless offensive, and springs from a bad habit of body. The dull white and the dusky forms (alphos and melas) come on and go off some people at different times, but the bright white (leuce) does not easily quit the patient whom it has seized. The cure of the two former is not very difficult; the last scarcely ever heals" (Lib V., c. xxviii., sec. 19).

The nigrescent, or second variety (according to Mason Good) was improperly termed black; more correctly it is *obfuscous;* and Celsus explains melas to mean "umbræ similis," or shadowed. A much severer malady than the first variety, it is in the Hebrew canon pronounced unclean; and Mason Good has no doubt of its contagious character. It appears in London among brewers' labourers, and others who are exposed to cold and damp, and to precarious and improper diet—just as the first variety is found there among bricklayers' labourers, and others who work among dry powdery substances. The bright white leprosy was the most serious variety. The pathognomonic characters are well described by Moses; and as several of them, taken separately, belonged to other skin diseases, it was only in the concurrence of the whole that the disease was pronounced a berat or malignant leprosy. The concurring characters were:—"A glossy white and spreading scale upon an elevated base; the elevation depressed in the middle, but without a change of colour; the black hair on the patches, which is the natural colour of the hair in Palestine, precipitating in the whiteness, and the patches themselves perpetually widening their outline."

The other cutaneous affections, already noticed, which predisposed to, or had a tendency to terminate in, malignant leprosy, are thus classed by Dr. Good:—

1. Shaat (שאת) (*Lev.* xiii., 2, 10, 19, 43)—Herpes, or tetter, οὐλή, an irritated cicatrix.

2. Saphat (מפחת) (*id.*, vv. 2, 6, 7, 8)—Psoriasis, or dry scall. Dry sahafata.—*Arab.*

3. Netek (נתק) (*id.*, vv. 30-31)—Porrigo, or humid scall. Porrigo.—*Lat.* Moist sahafata.—*Arab.*

4. Berat (כהרת) (*id.*, v. 2)—Leuce, bright white scale; the critical sign of contagious leprosy.

5. Boak (כחק) (*id.*, v. 39)—Alphos, dull white scale; critical sign of uncontagious leprosy.

6. Nega (נגע) (*id.*, vv. 29, 42)—Ictus, blow or bruise: ἁφή.

7. Shechin (שחק) (*id.*, v. 18)—Furunculus or boil, as in *Job* ii., 7.

8. Mecutash (מכוה אש) (*id.*, v. 24)—Anthrax, or carbuncle; literally "a fiery inflammation."

When any one of these appeared on a person he was brought before the priest; and if, in connexion with such a blemish, the specific marks of a tsorat, or malignant leprosy, were found, he was declared unclean, or, in case of doubt, he was remanded for further examination. The disease—particularly the bright white variety—terminated either favourably or unfavourably. In the former case it spread over the body without ulcerating, and, having run through its course, exhausted itself. In such case, while the scales were yet dry on him, the leper was declared clean, and restored to society. If the case terminated unfavourably, the patches ulcerated, producing quick and fungous flesh, the patient was pronounced unclean for life. He was clothed and otherwise treated as one dead, and the Hebrew theocracy compelled him to forsake the haunts of men, proclaiming to all passers-by the hopeless and irrevocable sentence—"Unclean, unclean."

Dr. Simpson, of Edinburgh, published, in *The Edinburgh Medical and Surgical Journal* (Vols. 56 and 57), a series of learned papers, entitled "Antiquarian Notices of Leprosy and Leper Hospitals in Scotland and England." From information collected by him from English and Scottish MSS. and records, from Dugdale's *Monasticon Anglicanum*, Semler's *Historiæ Ecclesiasticæ Selecta Capita*, Schilling's *Commentio De Lepra*, and other authorities, he shows that a disease, popularly known as leprosy, was everywhere endemic from the 10th to the 16th century; that against it princes and courts enacted laws, and popes issued bulls, particularly Alexander III., who issued a famous bull—"De Leprosis"—regarding the ecclesiastical separation and the rights of the infected. A particular order of knighthood—that of S. Lazarus—was instituted to care for the sick, particularly lepers, one of whom they had to elect as their master, until countermanded by Pope Innocent IV. They separated from the Knights Hospitallers about the 12th century.

In the middle ages leper hospitals were common everywhere. In 1226 there were 2,000 of them in France, limited as its territorial extent then was, while in England they were numerous and wealthy. They were receptacles for infected persons—not medical institutions, because the disease was considered incurable—and were mostly religious establishments, under the sway of some neighbouring abbey. By papal order they all had chapels and ecclesiastics. Thus, in the leper hospital of S. Giles, at Norwich, there were a

prior, eight canons regular, two clerks, seven choristers, and two sisters, to minister to the wants of eight bed-ridden lepers. At Illeford, in Essex, they had very hard religious duties, no end of prayers occupying them from early morn to near midnight; and at S. Julian's, at Saint Albans, Abbat Michael made some very significant rules "de accessu mulierum." From the extant laws of Sherburne Hospital it seems that refractory lepers were occasionally chastised with the birch, "modo scholarium." The lepers had abundant and good diet and clothing; and, from some extracts from MS. diet rolls and clothing lists of the lazar-house, it would seem that not only were all their wants provided for, but that sanitary rules of the best kind prevailed amongst them. They were often regarded as objects of compassion, and yet were often persecuted. Thus Kings and Queens used to visit them, wash, and sometimes kiss them, to exhibit pious humility; while, on the other hand, Philip V., and Charles VI. of France, enrolled themselves amongst scoundrels of the first water by burning these poor wretches alive, to grasp their hospital endowments.

Dr. Simpson proves that this disease existed in Europe before the Crusades, and was not brought to England by the returning warriors, as is generally supposed; since leper-houses existed in various places long before the occurrence of the first crusade of Peter the Hermit. The largest leper hospital in England was at Sherburne, near Durham, and was built by Bishop Pudsey, in 1181. In the 16th century, when this disease had nearly disappeared, secondary cases of the then new disease—syphilis—were largely admitted to the leper hospitals, which at that period were almost empty. In Scotland the lepers used a rattle to warn persons of their approach, and some similar usage prevailed in Italy. By English law they were classed as idiots, or insane, were counted dead, and could not inherit. The Church performed burial rites over a leper on his admission to hospital; he was clothed, and in every respect treated as a corpse in *foro ecclesiæ*. In France, until lately, the rituals retained the offices for the separation of the leper from the living. They appear to have been most touching, and must have been heartrending to the miserable outcast. They were concluded by the significant act of throwing a shovelful of earth on the leper.

Although Dr. Simpson refers to *Ledwich's Antiquities of Ireland* as giving information respecting leper houses in this country, I have not found account of any such; all Ledwich says is that the ancient Irish were subject to leprosy; contracted, according to general

opinion, from their constant use of raw meat; and that *aqua vitæ*, or whiskey, was held in great repute amongst them as an unfailing specific for its cure. Hence, perhaps, the national attachment of our countrymen to that useful medicine.

The Rev. Dr. Todd informed me that a leper hospital formerly existed on or about the spot where his chambers (No. 35) in Trinity College now stand; and that the rising ground north of Townsend-street was formerly called Lazar-hill. Dr. Aquilla Smith thinks its real name was Lazy-hill (perhaps a corruption of Lazar-hill).

I am indebted to Sir William Wilde, who kindly drew my attention to his *Report on the Status of Disease* (one of the Blue Books of the Irish Census of 1851), p. 90. In this may be found most of the known information about Irish lazar houses, which were numerous in Munster, and which, as in England and Scotland, were connected with monastic establishments. From his Blue Book "Tables of Deaths" of the same Census, it appears (p. 419) that besides those in Dublin, already noted, and in Cork and Waterford, to which further reference shall be made, there were leper hospitals in Galway, Co. Limerick, Dungannon, Wexford, and Kilbixy, Co. Westmeath. Most of this information is derived from Dr. Gerald Boate's *Natural History of Ireland*, first published in 1652, and from Archdall's *Monasticon Hibernicum*. The reader will do well to consult Sir William Wilde's able reports, which the Irish people can never sufficiently value.

Sir William is of opinion that the Irish disease was elephantiasis.

In Waterford there was a leper hospital, which though now used as an infirmary, is still known by its ancient name. The last recorded case of an Irish leper was found in it in 1775. There was formerly a "Leper's Old Hospital of St. Stephen" in Cork. It was governed by a prior; and later (temp. Ric. II., & Hen. IV.) by a guardian appointed by the king. It gave place to the parish church of S. Stephen, to which was attached, as an endowment, the landed property of the leper hospital. This parish, with some others, was ultimately incorporated into the union now known as S. Nicolas', while Baron Worth's Blue-Coat Hospital was built on the site of the church. It is still known as S. Stephen's Hospital. (*Caulfield's Sigilla Ecclesiæ Hiberniæ Illustrata*, pp. 28, 29).

Mr. Erasmus Wilson (*Diseases of the Skin*, fourth edition) says, the earliest records of this disease in Great Britain are those of the Welsh king, Hoel Dha, in 950. In 1547–1553 (Edw. VI.) a

commission for suppressing colleges, hospitals, &c., reported most of the leper houses as empty.

Dr. Simpson remarks that the earliest house in Scotland dates at 1150; and so late as 1604 a leprous woman was ordered into a lazar house at Aberdeen, by the Town Council; while there was a leper patient in the Edinburgh Infirmary in 1798. Mr. Erasmus Wilson says it still exists amongst us as morphœa (1. tuberosa; 2, alba atrophica; 3, nigra; 4, alopœciata), and that it has all along existed in the North of Europe. Dr. Edmonston, of Lerwick, quoted by Dr. Simpson, says that it "was in Zetland sixty years ago (before 1848), and still is in Iceland and the Faroe Islands." So great a plague has it been in Sweden and Norway that a government commission investigated it, and the result is the best book on the subject (*Traité de la Spedalskhed ou Elephantiasis des Grœcs*), by Dr. Danielsen, of Bergen, and Dr. Böeck, of Christiana, published at Paris in 1848.

My friend Dr. George Macleod of Glasgow, author of the scholarly and delightfully written book, *Notes on the Surgery of the Crimean War*, was in Iceland in the Summer of 1863. In answer to a letter of mine he thus writes:—"I saw a few cases (four) of leprosy when in Iceland, and was told by the chief surgeon (a government official, as they all are) that it was very common, and all of the tubercular variety. The gentleman I refer to, and whose name was Hjaltelin, (a most intelligent well-read man he is) attributes the disease to dirt, badly ventilated houses, and an unvarying diet; and if such causes are capable of producing this disease, I can speak for their powerful activity in Iceland. You are, perhaps, not aware that some years ago I paid some attention to the disease you write about, and that in Spain, Africa, and Palestine I saw much of it. I have always intended to give form to the scattered notes I possess upon it. . . . . There are no leper hospitals now *in use* in Iceland, though the buildings remain, but the disease is still very common. By improving the hygienic condition of young persons Hjaltelin has arrested the complaint."

Dr. Good states that this disease has been noticed by various travellers as existing in India, Madeira, and the Isle of France.

Dr. Madden remarked to me that he had seen much of it lately in Spain; and in Tangiers, where the tubercular disease exists side by side with the skin affection. The latter prevails among the Jew residents, and his description of the ulcerated leprosy, as he saw it, was, totidem verbis that of the Levitical canon. He also

remarked that it altered the countenance very little, except by destroying the eyebrows; and the women remedied this defect by the use of certain pigments.

There can be no question that European leprosy of the middle ages and the spedalskhed of Sweden and Norway are identical, the important question now presents itself—*are the leprosies of the Hebrews and of the middle ages identical?*

My reason for asking this question is, that two of our most modern writers on skin dieases—Neligan and Wilson—have adopted the affirmative view; and this view, with all respect I say it, I believe to be incorrect.

Dr. Neligan's notice of Hebrew leprosy is very meagre; without offering any proof, he asserts it to have been elephantiasis Græcorum, as distinguished from elephantiasis Arabum, the bucnemia tropica or Barbadoes leg of Mason Good; and he includes it under his tenth order, "Hypertrophia." He looks on the modern spedalskhed of Sweden and Norway as a variety of the former, and observes that elephantiasis Græcorum affected the mind, and was rather endemic than contagious. Under a different order, "Squamæ" he classes lepra or psoriasis lepræformis—the alphos of Celsus; and he includes lepra nigricans as a variety of psoriasis lepræformis. Alphoides of Willan, he concludes, is a variety of psoriasis guttata. Taking the letterpress of his book on *Skin Diseases* into connexion with his *Atlas*, there can be no question that he is quite right in classing elephantiasis—both Greek and Arabian—as wholly different from lepra, which wants the pathognomonic *hypertrophy* of the former, besides other prominent and unmistakable signs, which any one will at once see in his chromo-lithographs. To understand the force of this remark we must see what elephantiasis, or elephas, was. The Greeks so denominated it because the skin of persons affected with it resembled that of the elephant "in thickness, ruggedness, insensibility, and dark hue" (Good). This term, so applied, imported *elephant skin;* just as pityriasis, or *bran skin*, was given to a disease in which the skin had an appearance like branny scales; and icthyiasis, or fish skin, was given to another malady for a corresponding reason. Bateman thinks the term elephantiasis referred *also* to the *magnitude* and *duration* of the disease. A chronic malady, slow in growth, it yet makes steady advances on its subject. "The alæ of the nose become swelled and scabrous, and the nostrils are preternaturally dilated; the lips are tumid; the external ears, particularly the lobes, are enlarged and thickened, and

beset with tubercles. The skin of the forehead and cheeks grows dense and hard, and forms large and prominent rugæ, especially over the eyes; the hair generally, except on the head, falls off; the voice becomes hoarse and obscure; the external sensibility is obtunded or totally abolished, so that pinching or puncturing gives no pain. The tubercles at length begin to crack and ulcerate; ulcerations appear in the throat and nostrils; the breath is intolerably offensive; the palate destroyed; the nose falls off; the fingers and toes, from the increased depth and virulence of the ulcerations, become gangrenous, and separate, and drop off one after another." (Good, Vol. III., p. 427.) It is probable that the persecuted wretches, celebrated by classic authors as affected with *satyriasis*, had this disease; and it was sometimes called *leontiasis*, from the frowning and formidable aspect of the subject of it being supposed to resemble the lion as well as the elephant. Thus Aretæus, describing it, says "it is disgusting to the sight, and in all respects terrible, like the elephant;" and Avicenna affirms "it renders the countenance terrible to look at, and somewhat of the form of the lion's visage." The learned Dr. Mead (see *Medica Sacra*) thinks it was the disease of Job, and so does Mason Good. The comparison of Job's disease, as described in the Sacred Text, with the above description will tend to confirm this view; and the phrase "lazar house," synonymous with "leper house," was, probably, derived from the inmates of such a place being presumed to have the disease of Lazarus. Lazarus, we are told, was "full of sores," probably tubercular elephantiasis, yet his history shows that he was not a leper.

Mr. Erasmus Wilson, in his latest classification of skin diseases, according to their supposed *causes*, includes lepra and elephantiasis under the same class, "Diseases arising from special internal causes."

He looks on lepra as synonymous with alphos of Celsus, and boak of Moses; and terms elephantiasis "the leprosy of the Jews, the leprosy of the middle ages, the leprosy of the Arabians, and the elephantiasis of the Greeks." Again, he remarks, without offering any proof, "elephantiasis was, *as we have seen*, the leprosy of the Jews."

The only reference made by Dr. Simpson to the present question is, that, when speaking of the sanitary regulations prevailing in Tonquin, he remarks that the people of that country never had, or at any rate were never influenced by the Jewish customs or laws. From this passage, and from this only, I infer that he considered

elephantiasis to be the Hebrew leprosy. In any case, he clearly established the fact of the tubercular disease, just described, having been the leprosy of the middle ages, just as the spedalskhed of Sweden and Norway is at farthest a variety of that disease. In the MS. respecting Bishop Pudsey's Sherburne leper house, we are told, "*Elefantuosos* in episcopatu suo circumquaque collectos, ibidem instituit;" and again, the inmates of that house were on the roll called "elephantuosi." How, then, is it that by many writers of weight, ancient and modern, this elephantiasis was considered to be Hebrew leprosy?

Lucretius, following the common opinion of his time, ascribed the origin of elephant skin to Egypt; thus he writes (*De Rer. Nat.* VI., 1112):—

> "Est elephas morbus, qui propter flumina Nili,
> Gignitur Ægypto in mediâ, neque preterea usquam."

Arabia was also a very prolific source of this disease; so much so that by the Arabian name it is chiefly known over the East. The Arabic name is not elephas or elephantiasis, but *Juzam*, literally *disjunction;* from a root which signifies erosion, or excision; referring to the destructive character of the disease, as already detailed. This is Dr. Good's opinion, and it is much more correct than that of Mr. Erasmus Wilson, who, in his attempt to identify this disease with Hebrew leprosy, actually says the Arabs styled it Juzam, "probably on account of its early victims being the Jews." The Arabians, however, had another disease, now called by us Barbadoes leg, to which *they* gave the name of *dal fil*, literally morbus elephas; and thus, in the dark ages, when medical learning found a home at Bagdad, Bassorah, and Cordova—and when the best Greek writers were translated into Arabic, and the Greek and Arabic into Latin—two different diseases were found to bear the same name: for the Greeks, having already expressed Juzam by elephantiasis, and not knowing anything of the *dal fil* or Barbadoes leg, translated it also by elephantiasis, the general description of the symptoms being somewhat identical. While the Greek and Latin translators rendered *dal fil*, or Barbadoes leg, into elephantiasis, they also rendered *Juzam*, or tubercular elephantiasis (elephantiasis Græcorum) into λέπρα equally with lepra Græcorum, the scaly disease. Now, the Hebrew lepra, λεύκη of the Greeks, and beras of the Arabians, was, according to

general opinion, supposed to terminate in *Juzam*, or elephantiasis, the leprosy of the middle ages, as though one was merely an advanced stage of the other. Alsahavarius, and most of the Oriental dictionary writers, make them convertible terms; this was copied by Latin writers, until ultimately, in east and west, they were placed in the same nosological order. Bateman says, "the appropriation of *lepra*, which is never mentioned by the Greeks but as a superficial, rough, and scaly affection, the tubercular Juzam, has unfortunately misled and confused us for a thousand years." In clear agreement with Moses, Actuarius, writing of the worst variety of Hebrew leprosy, observes, "the lepra penetrates deep, forms circular eruptions, and certain funguses or deliquescences of flesh;" and Dr. Good, whose opinion as an Oriental scholar is entitled to vast weight, says, "we meet with nothing in the Mosaic account that approximates it to elephantiasis; nothing of a thick, rugose, livid, tuberculate, and particularly an insensible skin; nothing of fierce and staring eyes, hoarse and nasal voice, or of a general falling off of the hair."[a] Celsus speaks (*De Medicina*, Lib. III., cap. xxv.) of the elephantiasis as wholly different from the vitiligo which we have already identified (quam proxime) with lepra Hebræorum; and Dr. Mead,[b] commenting on his remarks, thinks "the Syrian leprosy did not differ in nature, but in degree only from the Grecian which was there called λεύκη." He also quotes Hippocrates as calling it λεύκη; but, following the general view, observes that the λεύκη and elephantiasis "were diseases of great affinity;" confirming his view by that of Galen, who remarks, that one sometimes changes into the other (*De Simpl. Medicam. Facult.* Lib. XI)[c]. It is plain, however, that Mead, Mason Good, Galen, and Hippocrates considered leprosy and λεύκη to be identical; and this λεύκη we have identified with *Berat lebena* of Moses. The word used by the LXX., λέπρα, from λεπις a scale, also confirms the preceding remarks. Because of the *white* scales it was likened to snow. Hence it is said that the hand of Moses was *leprous as snow* (*Exod.* iv., 6); that Miriam became "leprous, *as white as snow* (*Num.* xii., 10); and Gehazi went out from Elisha's presence a leper as (white as) *snow* (2 *Kings*, v., 27).

[a] Vol. v., p. 602.

[b] See Medica Sacra.

[c] Dr. Henry Kennedy remarked to me that there are pathological specimens of what is called leprosy in the Museum of the College of Surgeons. Some of them appear to have belonged to cases in which there was a mixture of the tubercular and skin diseases.

Mr. Erasmus Wilson would seem determined to prove his point at all hazards; for, as if to establish a foregone conclusion by refusing testimony to the contrary, he says (p. 360):—"The Sacred Writings, usually exact and accurate in their description of events, are so confused on the subject of elephantiasis as to require to be put out of the pale of reference when treating on this subject, and the pages of the Greek and Arabian authors are equally uncertain." Also, Dr. Henderson, while calling elephantiasis, in Iceland, the Jewish leprosy, apologises for Moses, that he "has not noticed the very striking anesthesia or insensibility of the skin, which is an inseparable attendant of the genuine elephantiasis" (*Iceland; or a Journal of Residence in that island*). Now, it is not Moses who is confused, or who omits to mention an important symptom of a disease known for thousands of years; but his modern critics who assumed the truth of their own position, and then try by that erroneous standard the great law-giver of the Hebrews, and the fathers of medicine, who wrote of another disorder altogether.

Mr. Erasmus Wilson gives (p. 384) what he calls "an exact and accurate interpretation of the Levitical code," (*Lev.* xiii.) which agrees with, but does not improve the English version. He dwells on the terms, "lower," "rising," and others; trying to make them fit to descriptions of elephantiasis. His criticisms are on the English text, and, of course, must fall short of the question; for the English translators were not well acquainted with medicine, and therefore any appeal must be to the originals. The confusion in nomenclature still exists in the Greek islands; thus, Mr. Jowett, in his interesting *Christian Researches in the Mediterranean*, describing Kydonia, near Scio, observes:—"A little further on is the hospital for lepers; it was founded by a leper. Elephantiasis is no common disorder in these parts; its effects are very offensive. I saw poor men and women with their fingers and legs literally wearing or wasting away." Also Robinson, in his *Biblical Researches in Palestine* (Vol. I., p. 359), says, "the symptoms described were similar to those of elephantiasis." The wearing or wasting away of the limbs described by Mr. Jowett is a character directly opposite to the distinctive feature of elephantiasis noted by Neligan—hypertrophy; and Robinson does not mean elephantiasis Græcorum, for he afterwards remarks, that they are a miserable-looking set of people; that their disease seems rather hereditary than contagious, for the children are free from it until they approach maturity, when the eruption breaks out on their limbs, faces, and bodies.

I think there is abundant proof, then, that the leprosy of the Hebrews and that of the middle ages were as dissimilar as wasting and hypertrophy can be. The confusion of writers accounts for this in great part; and the fact of the tubercular disease being supposed to follow the cuticular, and both being endemic in the East, would further account for the confusion. How far the idea of Galen, that they were kindred diseases, may be found true, it is not easy to say; but, like most remarks of the ancient keen observers, in all probability, there is much truth in it. Although the elephantiasis of the Greeks and the leprosy of the Hebrews, were, as we have shown, different in their appearances, symptoms, and effects, yet, if both were constitutional maladies, or if both were simply the results of exposure to conditions unfavourable to health, there is nothing impossible or improbable in the opinion that elephantiasis may have found an easier victim in the Hebrew leper than in any one of sound constitution. Among the Jews, and other Eastern nations, lepers occupied positions quite incompatible with the existence in them of the symptoms and results of elephantiasis. Josephus, discoursing on leprosy, refutes the idea that Moses was himself a leper in Egypt, and, on that account, conducted out of that country his countrymen who were similarly afflicted. He speaks of leprosy in a man as "a misfortune in the colour of his skin," and says "there are lepers in many nations who are yet in honour, and not only free from reproach and avoidance, but who have been great captains of armies, and been entrusted with high offices in the commonwealth, and have had the privilege of entering into holy places and temples" (*Antiq.*, Lib. III., c. xi., sec. 4. Whiston's Trans.).

We find Naaman, a leper, commanding the Syrian armies (2 *Kings* v.); Gehazi, the servant of Elisha the prophet, was conversed with by the King of Israel (2 *Kings*, viii., 4, 5); the leper was not excluded from the Synagogue (Lightfoot, Vol. I., p. 513), nor from the Christian Church (*Suicer Thesaurus Patrum* under, λέπρος). Also the leper, whose case is recorded by S. Matthew (viii., 1–4), followed our Blessed Lord among "great multitudes," and besought Him to *make clean* what Josephus called the "misfortune in the colour of his skin;" and that this was Levitical leprosy is plain from his being directed to show himself to the priest, "and offer the gift that Moses commanded." None of these occurrences can be accommodated to the idea that elephantiasis was the disease in question; so different are they, indeed, that no other literary loophole lay open for two writers already mentioned, but for one to apologise for, and

the other to set aside, the account of Moses, as though the great Hebrew required the defence of the one, or required his writings to be eclipsed by the "confusion" existing only in the mind of the other.

In passing, I may just remark that the bucnemia tropica, or Barbadoes leg, though often mistaken for leprosy, or for elephantiasis, is no longer so regarded by any writer. Curiously enough, Dr. Neligan quotes, as cases of it occurring in Ireland, two instances of disease recorded by Dr. Graves in the fourth volume of *The Dublin Hospital Reports*, p. 54. Dr. Graves, however, says they are "pathologically different from the bucnemia tropica of Good." One was a case of chronic non-inflammatory swelling, and the other an acute inflammatory swelling, not unlike a result of local erysipelas, so far as one can judge from the accompanying plate in the volume referred to. The first of Dr. Graves' cases, in most important particulars, resembled the very remarkable one described by Mr. Butcher, in his Operative Surgery Reports (*Dublin Quarterly Journal of Medical Science*, Vol. XXXV.). I mention it merely to say that it seems to have been an instance of the genuine dal fil of the Arabians, in which, on the theory of its being a blood disease, Mr. Butcher effected a nearly complete cure by the bold operation of ligaturing the femoral artery of the diseased limb.

Having now shown what the Levitical disease really was, I proceed to offer some remarks on the question—Was it contagious ? Great diversity of opinion prevailed, and still prevails, on the disputed contagious properties of Hebrew leprosy; nor, from what has just been discussed, can we be far wrong in assuming that opposing writers often had little real difference of opinion, save that, unconsciously to themselves, they were disputing, not of the same, but of different diseases. The loose and various meanings attached to the term *contagious* also contributed not a little to this result. I shall begin by attaching a definite meaning to the terms about to be employed. The disease, as already shown, was the alphos, melas, and leuce of Celsus; and now, was this disease, in its three Mosaic varieties, contagious?

Properly speaking, *contagion* may be applied to a disease communicable from one person to another only by personal contact, and *infection* to a disease communicable from person to person by other means—*e.g.*, by breathing infected air. However, as in point of fact—or, rather, as in general opinion—some diseases, such as small-pox, are believed to be communicable by both means, I shall

extend the meaning of *contagious* to any disease which one person may take from another by personal contact, by touching or wearing the clothes or furniture of a sick person or room, or by breathing the infected atmosphere of an apartment. If an animal poison enters the body of a healthy person it is pretty much alike whether that entrance be effected through the lungs or through the skin, or even through strong impressions on the nervous system. In any such case a disease may be said to be contagious, because, as Dr. Watson has observed,[a] it is literally *catching*. In this sense, then, shall contagious be regarded in the few following remarks.

The boak, or dull white leprosy, has been, by most moderns, regarded as solely a constitutional disease; but the best Greek and Arabian writers did not regard it as other than a cutaneous affection. Dr. Willan held the latter view, and ascribed it to the causes mentioned in the beginning of this paper as still producing a like result in London. Dr. Good also coincides with Willan, and remarks that Moses describes the affected persons as having, in *the skin of their flesh*, a berat; and, on this appearing to be *dull*, the subjects were declared to have "a BOAK *growing in the skin*," and to be *clean*—that is, non-contagious (*Leviticus*, xiii., 38-39). Though lazarettoes abroad are often assigned to all the varieties indiscriminately, yet Good considers this to have resulted from an erroneous interpretation of the exceptions introduced into the Jewish law. Thus the lepers of Haha, a province in the Barbary States, though banished from the towns, are seen in parties of ten or twenty together, infesting the roads and approaching travellers to beg charity. In Morocco they are confined to a separate quarter, or banished to the outside of the walls. They are, according to Mr. Jackson, but little disfigured by the disease, except in the loss of the eyebrows, which the females endeavour to supply by the use of lead ore, while they give an additional colour to their complexion by the assistance of al akhen, or rouge. In like manner Niebuhr asserts that one of the species of leprosy to which the Arabs are subject is by them still called boak, but that it is neither contagious nor fatal. Upon which remark his annotator, M. Forskâl, adds:—"The Arabs call a sort of leprosy, in which various spots are scattered over the body, behaq, which is, without doubt, the same as is named בהק (bohak, or behaq), in *Lev.* xiii. They believe it to be so far from contagious that one may lie with the person affected without danger.

[a] Lectures, 4th edition, p. 778, Vol. ii.

On May 15, 1763," says he, "I saw, at Mokha, a Jew who had the leprosy bohak. The spots are of unequal size; they do not appear glossy; they are but little raised above the skin, and do not change the colour of the hair. The spots are of a dull white, inclining to red."—(*Study of Medicine*, Vol. V., pp. 597-98.) There can be no doubt, then, that experience bears testimony to the exactness of Moses, and that this boak was not contagious. Willan, while rejecting the idea of contagion, still thinks it may become so interwoven with habit as to be constitutional and propagable. The medical experience of late years would seem to agree with such a view as this. At any rate, certain it is that there are skin diseases which, first appearing locally, and from plain external causes, afterwards turn out to be constitutional, and are removed by constitutional means. In any case of this boak we should now rely mostly on constitutional treatment; and although, with Willan, we may ascribe its origin "to cold, moisture, and sordes on the skin," yet we may see nothing improbable in its becoming constitutional "in persons of a slow pulse, languid circulation, harsh, dry, and impermeable cuticle, or whose diet is meagre and precarious."

That the two tsorats—berat cecha and berat lebena—were contagious seems to have been the universal belief of ancient writers; and, if Moses is to be considered as a sanitary legislator, there appears little ground for holding any other view. We have seen that boak was pronounced *clean*, and the person affected with it was permitted to enjoy all civil and social rights; while persons affected with the two tsorats were undoubtedly pronounced unclean, and, *ipso facto*, became civilly extinguished. That these leprosies were not contagious many learned men have urged; and it must be admitted that they have done so with much weight. Dean Alford, of Canterbury, in his well-known edition of the *Greek Testament*, thus comments on *S. Matt.* viii., v. 1, 2, &c.:—"The whole ordinances relating to leprosy were symbolical and typical. The disease was *not contagious;* so that the view which makes them mere sanitary regulations is out of the question. The fact of its non-contagious nature has been abundantly proved by learned men, and is evident from the Scripture itself, for the priests had continually to be in close contact with lepers, even to handling and examining them. We find Naaman, a leper, commanding the armies of Syria (2 *Kings*, v.); Gehazi, though a leper, is conversed with by the King of Israel (2 *Kings*, viii., 4, 5); and in the examination of a leper by the priest, if a man was entirely covered with

leprosy he was to be pronounced clean (*Lev.*, xiii., 12, 13). The leper was not shut out from the synagogue (Lightfoot, Vol. I., p. 513), nor from the Christian churches (*Suicer Thesaurus Patrum* under λεπρός). Besides, the analogy of the other uncleannesses under the Mosaic law, *e.g.*, having touched the dead, having an issue, which are joined with leprosy (*Num.*, v. 2), shows that sanitary caution was not the motive." Dean Alford further remarks that the Mosaic law, in this respect, was symbolical, and that only; that under it a leper was the type of one dead in sin, and that the same emblems were used in his case as in those of mourning for, and cleansing after contact with, the dead; which precautions were never used on other occasions (compare *Num.*, xix, 6, 13, 18, with *Lev.*, xiv., 4-7).

Archbishop Trench, in his *Notes on the Miracles* (p. 210), refers to Robinson's *Biblical Researches in Palestine* (already quoted), and seems to think, with him, that the disease was constitutional and hereditary, but contagious only from man to wife. He is further of opinion that "it was not in any respect a sanitary regulation;" and remarks that "where the law of Moses was not observed no exclusion took place; and where the law was in force the stranger and sojourner were expressly exempted from its provisions." Rhenferdius, the old medical writer already quoted, thinks it was not contagious, because the priest who examined and handled the leper did not get it; because, up to the time of decision, the patient was suffered at large; because universal lepra was pronounced clean; because, if there were any well-founded suspicion, it is highly probable (*sit verisimile*) that Moses would have called *every* species unclean. He quotes from the Talmudists to show that the examination could not, and did not, take place either in the morning, or in the evening, or on a cloudy day, or at noon, but at the third, fourth, fifth, eighth, and ninth hours of the day. Neither did it occur at various festival seasons, nor at nuptials, when, in case of suspicion, a set time (*septemduum*) was given to the married man before examination, and in the case of Jews only did it occur at all. He also remarks on the case of Naaman, the Syrian leper; and from all these facts concludes that it was not contagious, because, if it were, nothing would have occurred to defer the immediate separation of the infected person.

On the other side we have much of the learning of antiquity, the bare mention of which would be foreign to our present purpose. We have those who meet the statement just now recited—that the

Mosaic law of leprosy was symbolical only—by a counter-statement that it was sanitary only; and we have those who pursue the *via media*. They follow the presumed principle of the Jewish theocratic government, and neither ignore the symbolical law on the one hand, nor ignore the sanitary law on the other, but combine both. Thus, considering the Jewish Church and State to be co-extensive, they look on this part, as well as many others, of the Levitical code as both symbolical and sanitary.

Whether there be such a thing as contagion at all is still disputed among us, and the facts and arguments adduced on both sides are apparently so cogent, when properly and forcibly set forward, as to lead an impartial auditor to believe both sides, or, becoming a medical infidel, to believe neither. To establish the connexion between cause and effect is the aim of one side, which argues that because one man or a number of men were exposed to certain influences, and after that exposure contracted a certain disease—therefore they contracted it from the said exposure. If all men, whenever subject to these conditions, did actually contract the given disease, then, indeed, there would be a moral probability as to the connexion between cause and effect, but of course not an absolute certainty. The non-contagion men, taking a logical stand—that an argument from a particular to an universal is invalid—produce perhaps an equal number of cases in which men were in conditions precisely similar to the others, and yet did not contract the given disease; which they argue arises from other and unknown causes. Now, men look at these things from different points of view, and hence it has been remarked that what we call Liberals in politics are generally non-contagion men, while those termed Conservatives stand by the old paths of orthodox contagion. So also it has been remarked that classical men—as we term them—are contagion upholders, while science men resolutely oppose contagion; and, if they believe in it at all, attempt to reduce it within the smallest possible limits. As any dispute about the contagion of a disease resolves itself into a question of observation, both in daily life and in books, I think the old medical writers were as acute observers of nature as we are, with all our boasted knowledge; and, passing by the ancients, I just mention Mead and Mason Good as men who, by their learning, lived in the old world, while by their observation and experience they lived, and lived to purpose, in their own times. Now, Good says of the tsorat, "there is no doubt of its having proved contagious;" and

the learned Dr. Mead, while accounting for the apparent difficulties of the case, is of a like opinion.

To the objections brought forward to the contagious nature of Hebrew leprosy it may be urged—1. That the assertion—that the Mosaic ordinances in this respect are solely symbolical—is a mere assertion 2. That the priests or physicians (for in this latter capacity they are here considered) did not contract it by intercourse with the leper—may be accounted for by the known position of medical men in all ages. They are exposed to contagion more than any other class, and yet the cases in which diseases are contracted from patients are comparatively few; even of this small average many are notoriously caused by want of that proper precaution which, even if leprosy be admittedly contagious, would protect the careful physician from injury by contact. Besides, there is nothing to show that the priests did not exercise this proper precaution, nor is there anything to prove that without it they were wholly exempt or protected from the disease. 3. The case of Naaman is beside the question, as he was not a Jew; even as a Syrian, his social position—which plainly was not affected by his disease any more than such would now be in this country—would enable him, by having every personal convenience and accommodation, to avoid communicating his disease to any one. The same remark would apply to the case of the King of Israel conversing with Gehazi, whose case, if it proves anything, proves that *his* leprosy did not render him civilly dead, for he continued to go about much as usual (2 *Kings*, viii.); while the four lepers who discovered and reported the flight of Benhadad's besieging army from before Samaria, were dwelling outside the city, "at the entering in of the gate," and, as they could not come in, "they called the porter of the city," and sent the news to the king's household. This circumstance, then (2 *Kings*, vii.), taken in connexion with the Mosaic law, would seem to indicate that whether Gehazi was a contagious leper or not, the other four certainly were so regarded; for all the confusion of a siege did not induce the hopeless guardians of the gate to admit the lepers shut out by the law of Moses.[a] 4. We cannot pause here to inquire with reference to the admission of lepers to the synagogues and the Christian churches, whether

[a] It has also been urged that, as Gehazi was a leper as white as snow, he was totally covered with the non-contagious variety; and, as his disease was "the leprosy of Naaman," it would partly account for both of them being at large. This view, however, is incompatible with the *penal* nature of Gehazi's disease.

the disease referred to by Lightfoot and Suicer was leprosy at all? If it were, there was no Christian law to exclude a leprous convert from the church; while the Jewish law was certainly broken by the admission of a leprous Jew to the synagogue. 5. The analogy of the law of leprosy to that respecting one touching the dead or having an issue is also easily explained. Every medical man knows that touching the dead is literally an *unclean* act, and in some cases a highly contagious and dangerous one also. From want of caution, or from accident, many an anatomical student has contracted diffuse inflammation, and succumbed to speedy death; nor has the lot of the surgeon operating on the living sometimes been much better. The idea of the uncleanness of the dead is one thoroughly rooted in us all. In a short time a dead person becomes disgusting; and if there be any truth in foul air and impurity causing disease and making men *catch* it, then, in this sense of contagion, it would be hard to persuade any one that a dead body was not really unclean.[a] The same remarks apply to the issue; and whether the term "issue" be held to mean "fluxus seminis," as in the Vulgate, and the LXX. (ο γονορρυης—ha-zab הזב Heb.—the man with the issue), or, as in the margin of the English authorised version, "a flowing from the reins"—medicè "Enuresis;" it amounts to much the same thing; either is undoubtedly unclean; and, as sanitary science on plausible grounds reckons uncleanness directly conducive to disease, there is no doubt of the wisdom of separating the healthy part of the community from the unclean as contagious, even on a general sanitary principle. Thus, the analogy between Hebrew leprosy and the above cases may seem to point very strongly to the sanitary view of the Mosaic code. 6. In the case of the man entirely covered with leprosy or blemish, and yet pronounced clean, the contagion theory is easily supported. I have already observed that the blemish might terminate favourably or unfavourably; it is in the former case that the λεπίς, or scale, spread over the entire body without producing any ulceration; gradually it lost its morbid power and exhausted itself, and *then*, when the scales were yet dry on the patient, he was pronounced clean. This is the view of the learned Mead, and also of Good; and I think it is fully borne out by the authorised English text of *Lev.* xiii., especially when we remember the two senses—generic and specific—in which leprosy is employed by the translators. On the supposi-

[a] This is the plain principle of extra-mural interments in this sanitary age of ours.

tion that it was a more extended and worse kind of the same unclean leprosy it is difficult to perceive the symbolism of pronouncing that ceremonially clean which was corporeally the very worst kind of uncleanness.

7. The reference to Robinson's *Biblical Researches in Palestine* may be explained by stating that the writer in question does not clearly show what kind of leprosy he saw; he merely states a few symptoms, which may lead one to infer that it was not elephantiasis, as he called it. As to its being hereditary, that is very probable; and the question—is it contagious from man to wife? opens up another field for discussion. In this sense phthisis pulmonalis was, in this country, long held to be contagious; and on the Continent such is still the general opinion. In Italy the clothes and effects of one dead from phthisis are burned, just as the clothes of any leper were; and, if we ask the cause of this widely-spread persuasion, it probably may be found in the facts that a husband, a stranger in blood to his wife, dies of phthisis, and he is soon followed to the grave by the wife, who succumbed to the same disease, to which, unlike the husband, previous to his illness she manifested no predisposition. A sister who slept with a sister affected with phthisis, and a friend who nursed a youth dying of it, fell victims also. These facts are explained by stating that the hidden tendency to phthisis existed in all, but that the circumstances to which the healthy were exposed developed this fatal tendency. This view of contagion, or *communication*, agrees pretty much with what Fracastorius, an old writer, has remarked, that "a consumption is contagious, and is contracted by living with a phthisical person, by the gliding of the corrupted and putrefied juices of the sick into the lungs of the sound man" (*De Morbis Contagiosis*, Lib. II, cap. 9). So Mead thinks "the leprosy may pass into a sound man. . . . Perhaps also by cohabitation." At any rate it is well known that a husband and wife frequently become so like each other as to be taken for brother and sister, and any young person habitually sleeping with an old one becomes, in a great measure, constitutionally assimilated to the elder.

8. That no exclusion took place where the law of Moses was not observed is accounted for on the simple principle that no law is observed anywhere except where it is in force; and where it was in force I cannot find any proof of the exemption of the stranger and sojourner from its provisions. So far from this, indeed, we are told (*Lev.*, xix., 34) that "the stranger that dwelleth with you shall

be as one born among you;" and, provided he was circumcised, he might eat of the Passover, and was in all respects considered a Jew—"he shall he as one that is born in the land" (*Exod.*, xii., 48.)

9. Some of the objections of Rhenferdius are weighty; several of them have been already considered, and a few only now remain. They may be all placed in one group, thus:—That up to the time of decision the patient was suffered at large; because if there was any good ground for suspicion of contagion Moses would have pronounced *every* species unclean; because the examination was conducted only at the clearest and brightest hours of the day, not at all at various festivals, and only after some time in the case of newly-married persons. The idea set forward in these objections is that, if the disease was really contagious, all haste would have been made to seperate the leper from the healthy. Now, for the sake of argument, let us assume the law of Moses to be a sanitary treatise, and we shall see the great importance of the priest-physician's making an accurate diagnosis. This law was written for all time, so far as the Hebrew nation was concerned; and if any error should exist in it, or in the administration of it, the grievance to unborn generations would be immense. Thus, all the common and unmistakable signs of leprosy are omitted, and those capable of being misjudged are set down in so clear a way that the priest had only to follow his instructions and give a judgment, which was never resisted as unjust. Every possible precaution was to be taken—full time, clear light, and circumstances free from any excitement connected with the public feasts or private rejoicings, were to serve as guides to the physician, that he might, in all doubtful cases—as we do still—give the prisoner the benefit of the doubt, and avoid dooming a clean person to the horrors of the unclean leper. We all recognise this principle, even in our imperfect lunacy laws; for it is a more fearful thing to doom one sane man to a madhouse than to let loose ten madmen on the public.

"Some have thought that it must have been a great hardship to be shut up seven or fourteen days for every attack of skin disease, and therefore propose a new reading of the words "shut up," making it "bind up," inferring that the priest merely covered or bound up the eruption. Dr. Boothroyd, Bishop Law, Pilkington, and others, have supported this reading. But there seems to me no good ground for altering the authorised version. It would be of little importance, even in these days of activity and business, to shut up for seven days every one who has a suspicious skin disease,

although we have no fear of leprosy."—(*The Great Physician*, J. Gardner, p. 75.)

The leprosy of houses and clothes (*Lev.* xiv.) has been understood to refer to a supposed analogy between the spots and disfigurations appearing on clothing and houses, and leprous marks on the human subject. Others have understood it to mean dampness, and unfitness in various ways for human use or habitation; while some again have looked on it as dead wool woven into the texture of the clothing, and saline efflorescence exuding from the walls of mud or aluminous earth. However this may have been, there are few facts better known than that clothing can communicate disease, and that not only houses can cause it by their general unfitness for habitation, but that persons going to reside in a house lately tenanted by persons sick of such a disease as scarlatina will readily contract that disease. That the leper was clothed and treated like a dead man cannot, as far as I can see, affect the question of contagion in any way; nor can the admitted contagious nature of the disease at all destroy its emblematic character. On the contrary, if it was *not contagious*, then, indeed, it would lose the most important part of its typical nature, its resemblance to the contagious nature of sin; and if the law was "in no respect" sanitary, it takes away one proof of the theocratic government of the Jewish state. I think, then, there is fair ground for holding that Hebrew leprosy was not necessarily infectious by contact in every case; but it may be reasonably supposed that in the wider sense of being communicable by social or family interchange, it tended to deteriorate the health of the sound, and specially to predispose them to leprosy when attacked by the minor skin affections. They were classed with leprosy by Moses, and, all together, probably form a better classification of cutaneous diseases than any of the systems now extant.

Art. XIV.—*Further Observations on Missed Labour.* By Alfred H. M'Clintock, M.D., F.R.C.S.; late Master of the Lying-in Hospital, &c., &c.

After the publication of my paper on Missed Labour[a] I received some very interesting communications from practitioners in different parts of the country bearing upon this subject. These, with the

[a] Dublin Quarterly Journal of Medical Science for February, 1864, page 51.

permission of their authors, I now propose publishing, as it would be a pity that they should be lost.

Dr. Burden, Professor of Midwifery in Queen's College, Belfast, gives me the brief outline of a well-marked case of missed labour which occurred some years ago in the General Hospital of that city. It fell under the care of the late Dr. Saunders. "The patient came some twenty or twenty-five miles from the country to the above-named hospital. The history she gave of herself was, that at the proper time strong labour came on; but when her medical attendant saw her the pains had become weaker. He gave her laudanum—how much she could not say—whereupon the pains soon ceased, and never recurred. Some weeks afterwards she was sent into the hospital, and died there; and on laying open the uterus, a child was found in a dissolved, putrid state."

This history, meagre and imperfect though it be, nevertheless brings one fact strongly before us, namely—that once the uterus is baulked or thwarted in its normal attempt at parturition, it becomes indisposed to make any renewal of decided parturient efforts. In the above case parturition was diverted—if I may so speak—by the improper use of opium, and never seems to have been renewed.

It has been supposed by some writers that missed labour is of comparatively common occurrence among cows, sheep, and other domestic animals; such, however, is not strictly true; and the only instance of the kind among these animals which has ever come to my knowledge, is that communicated to me by Dr. Patton, of Tandragee, who had it from the Duke of Manchester's steward. The steward's letter to Dr. P., detailing the case, is as follows:—

"Sir,—In relation to the case of the sheep, I beg to say, that eight or nine years ago several of our South Down breed seemed unable to eject their lambs; and after due time—say eight or ten hours from the coming on of the pains—I had them examined, and in every such case found a brownish offensive discharge coming from the sheep. This led me to conclude that the lamb was for some time dead; and any attempt to extract it proved fatal to the ewe. After three or four such had occurred, I resolved not to interfere again under similar circumstances. It was not long till the shepherd informed me of another ewe being sick, like the former ones, with no prospect of the lamb being ejected. I had her put in a small paddock in the lambing place, where she was closely watched for several days. The result was, that in less than a fortnight the

ewe was so much improved in appearance that I contended she had lambed unknown to the man in charge of the flock, and he as strenuously asserted that she had not. I now ascertained that the brownish discharge, which had continued for several days, was completely ceased. I had the ewe marked and turned out, after being shorn, with the rest of the flock. She quickly got into condition, and in June or July following I sold her to a butcher in the village; and judge my surprise, when called into the victualler's slaughter-house, to find a full-grown lamb in the womb. The lamb had undergone no change from what it would have presented at the time labour pains came on in the dam.

A similar case to this occurred last year on the same farm."

Dr. Patton adds:—"I saw the lamb *in situ;* it was healthy in point of size, and free from decomposition. The mother was fat, and sold as good mutton. The steward inquired of the Duke of Manchester's English shepherd and of others, and could not ascertain that they had seen such cases."

That the above was an example of missed labour seems unquestionable; but I am somewhat at a loss to account for the perfect preservation of the fetus. The brownish discharge from the vagina, at the time of the imperfect attempt at parturition, would lead one to suppose that the sac of the ovum had burst, and as a general rule—in the human subject at all events—decomposition of the dead fetus ensues upon this event. However, I have cited, in my former paper, one or two cases which tend to show that, under the circumstances just mentioned, the decomposition of the fetus is not an inevitable occurrence.

I may, perhaps, be permitted to mention, that in the *Veterinarian* for 1834, two cases, which we may consider to be examples of missed labour in cows, are related by Mr. King, of Stanmore. In one of these the remains of a fetal calf came away at intervals in broken fragments; and ultimately, when all the fetus seemed to have been discharged, the cow did well, became fat, and was sent to Smithfield market.

In the other case the uterus of a fine, healthy, fat cow, which had been slaughtered, was found to contain the entire skeleton of a calf. All the soft parts had separated, and wholly escaped. Nothing of the previous history of this animal was known.

The next communication I shall submit is from Dr. Carson, sen., of Coleraine. He writes:—

"The perusal of your very interesting paper on 'Missed Labour' has brought to my recollection a case which occurred during the time of my residence in the Anglesea Lying-in Hospital, Dublin, in the year 1836. Mrs. Byrne came to the hospital in the first stage of labour with her first child, at the completion of the ninth month of utero gestation. Shortly after her admission her husband managed, by some means or other, to make his way to her bedside, in a state of intoxication. He not only alarmed her very much, but beat her very severely before she could be rescued from his grasp. She complained of being injured in the abdominal region; her pains ceased, and the infant no longer exhibited any indications of life. She remained a few days in the house, and then returned to her home. We heard nothing more of her for *two months*, when she again entered the hospital in strong labour. She was placed under my charge during her illness. The presentation was natural, and the dilatation of the os uteri went on most satisfactorily; but the head never made the slightest progress through the outlet of the pelvis, although the expulsive pains were most powerful. The smell of the air which escaped from the vagina was the most oppressive thing I ever felt. My impression was so decided in favour of immediate delivery that I three times called the surgeons of the hospital to the case. They, however, were of a different opinion, and refused to interfere with the progress of the natural efforts; but ultimately they were obliged to give assistance, and she was delivered, with the forceps, of a dead female child, at the termination of the fifty-third hour from the commencement of her labour. The child was in a peculiar state of decomposition. The tissues were all so blown up with air as to increase the size of its body to an enormous extent, which increased size had rendered the labour so tedious. In place of being flaccid, the body was as firm as a drum, and gave a feeling to the hand something like blown veal. This patient died in less than two hours after delivery, apparently from exhaustion, on the 4th June, 1836."

As parturition did eventually take place in the foregoing case, perhaps it might, with more propriety, be regarded as an example of prolonged or serotine gestation, than one of missed labour. View it as we may, however, the case is one of considerable clinical interest.

When the embryo perishes in utero, at however early a period of gestation, there is a physiological necessity for its expulsion; and,

practically, we know that such almost invariably takes place at some subsequent period, varying from a few days to several weeks. On very rare occasions the uterus altogether fails to take on, or to complete, this parturient action, and hence the fetal remains are retained in utero for an indefinite time, and ultimately come away, perhaps, in broken decomposed fragments.

Now, I think it is in accordance with strict analogy and sound pathology to comprehend all such cases in the term "missed labour," the word labour being here synonymous with parturition. They constitute a very interesting and important group; and, though not of frequent occurrence, yet they are by no means so rare as the instances of "mature labour" being missed.

To the term "missed abortion," which might suggest itself as being more specific in its import, there is the obvious objection that missed abortion would be equally applicable to every case of pregnancy going on to its natural termination, for all such patients might truly be said to have missed aborting.

The case I am now going to relate supplies a very excellent and instructive illustration of the effects arising from parturition not taking place after the death of the embryo at an early stage of utero gestation. It was communicated to me by Dr. John Brown, of Dundalk.

A woman, aged thirty years, who previously had one child, became pregnant in the month of April. In the August following, after over-exerting herself in carrying a load, she suddenly felt unwell, and on the next day a severe uterine hemorrhage set in, which continued for some time and then ceased, but was replaced, at a later period, by an extremely fetid discharge from the vagina, which went on for several weeks. Dr. Brown was brought to see her, for the first time, in the month of November, on account of severe pain in the uterine region and vagina. During the course of the succeeding weeks several bones—almost twenty in number, and consisting of cranial and long bones—were removed by Dr. Brown, or were spontaneously discharged. With none was there any trouble except the two cranial bones, which required to be extracted with the forceps. The largest of them got impacted in the neck of the uterus, and Dr. Brunker assisted him in removing this bone, which was effected with the aid of a speculum. During all this time the woman had no bad symptoms. There was not any amount of constitutional disturbance or uterine inflammation, although, at times, the cervix was irritated very

considerably in the efforts to extract the parietal fragments. Not long after this her uterine health seems to have been completely restored, for in the following April or May conception took place, and gestation proceeded naturally to its close.

Such an occurrence as that which constitutes the chief feature of the foregoing case, is only met with on very rare occasions. Nevertheless, I imagine, there are few practitioners, in large obstetric practice, who have not, at some time or other, seen such cases. I am permitted to mention the following history of a case that was under the care of Dr. H. Purdon, of Belfast, and about which Dr. Churchill was consulted:—

A lady, when in the fifth month of her second pregnancy, was seized with symptoms of abortion. There was a very copious discharge of water, succeeded by frequent pains. At times, generally at night, what she described as pieces of flesh, quite different from coagula, came away along with a dark fetid discharge. This went on for some weeks, when the tibia of a fetus—about twelfth or fourteenth week—without the epiphyses, was observed in the vaginal discharge. For months this lady suffered under symptoms of uterine irritation, the menstruation being also irregular; and the body of the uterus enlarged and anteverted. Some months after these symptoms had abated she felt, during one night, a return of hypogastric pain; and in the morning, as she had a sensation of painful uneasiness in the vagina, she introduced a finger and brought away a small spicula of bone. After this her general health greatly improved, though some enlargement of the uterus remained. Vaginal examinations were made, from time to time, in the progress of the case, but the os uteri would not admit the passage of the finger to explore the uterine cavity. Many months later—the menstrual function meanwhile continuing scanty and irregular—a very perfect rib came away, preceded for some time by a brownish offensive discharge. This occurrence took place only a few days ago, and Dr. Purdon is of opinion that there yet remain in utero some of the debris of the embryo.

A case not very unlike the foregoing was published in the *Lancet* (December, 1838), by Dr. Rawson, of Kegworth. A lady, aged twenty-seven, when in the fourth month of her fifth pregnancy, got a kick in the abdomen. For a fortnight after this she suffered from pains in the hypogastric region; and, at the end of this period, there came away a considerable quantity of water from the vagina, succeeded by a smart hemorrhage. At a later period the bones of a very small fetus were discharged; and last of all came the

membranes and placenta; the latter appearing not in the least putrid or decomposed. The woman eventually recovered.

Having accidentally come across this history I thought it well to introduce it here. I am sure that a diligent search through the volumes of our medical periodicals would bring many other such cases to light.

A far more common accident than that illustrated in the preceding cases, is the retention of some of the involucra of the ovum after the escape of the fetus from its cavity. If the sac of the fetus be unbroken the entire mass may sometimes remain in utero for many weeks or months. Thus Dr. G. Hewitt exhibited, at the London Obstetrical Society, an ovum of this kind which had been retained in the womb for five months after the death of the embryo, and Dr. Hardy exhibited at the Dublin Obstetrical Society a blighted ovum, which had in like manner been retained for nearly six months.

Now it is a very remarkable circumstance that the effect of such prolonged maceration of the fetus is very different in the earlier and the latter months of pregnancy. The fetus becomes, in the former case, shrivelled, firm, and contracted; whereas if it should have reached the sixth or seventh months of intra-uterine life before its death and subsequent maceration in the liquor amnii, it is found soft and flaccid, with the cuticle peeling off; and though far advanced in decomposition the body is perfectly free from fetor or emphysema. I have some drawings which very well exhibit the characteristic appearances belonging to the two states.

If the embryo that perishes happen to be one of twins, it may remain in utero till the full term, and then be expelled in a flattened, transformed, but not putrid, state. Of such a fetus I have a very remarkable preparation and drawing.

Of the cases where the dead embryo is retained in utero, then, there are only a very small proportion in which it undergoes putrefaction, and produces the train of symptoms described in the foregoing clinical histories.

Every practising obstetrician should be aware, however, that symptoms of this kind may have such a cause for their production. Ignorance or forgetfulness of this fact, obviously, would involve him in a serious mistake of diagnosis; and this, too, under circumstances where error is specially to be guarded against, as an erroneous view of the nature of the case, in one of its bearings, might, perchance, convey a grave imputation on the patient's moral character.

The correct diagnosis of cases, such as I have been describing, is

a question of more importance, as it is one of much greater difficulty, than the treatment. For, having cleared away all suspicion of the case being one of malignant or organic disease, our course of treatment becomes at once very much simplified. In every doubtful case we should take a minute account of the previous symptoms, their order of occurrence, and the dates of their appearance, &c. Without this careful attention to commemorative signs we may commit grave and culpable mistakes. It is very satisfactory to think that though these cases may occasionally present anomalous and puzzling symptoms, yet that it is not very difficult to unravel them by strict inquiry into the patient's previous history; unless she have some motives for concealment or deception, then, indeed, there may be just cause for perplexity.

Where the sac of the ovum has burst or been opened, and the fetus has undergone decomposition, there will be, for a considerable length of time, a dark-coloured offensive discharge from the vagina. It is very remarkable, however, that hemorrhage does not seem to be a usual attendant under these circumstances, which is contrary to what we might *a priori* have expected. The condition of the os uteri may not supply any information one way or the other; but the body of the organ will be found augmented in bulk, and somewhat anteverted, perhaps, as in Dr. Purdon's case already mentioned. If any portions of bone be found in the genital passage, or have come away in the discharge, this circumstance will of course throw a great light upon the nature of the case. The cautious employment of the uterine sound might very materially aid us in our inquiries, by enabling us to detect osseous remains within the cavity of the womb.

In regard to treatment our measures should consist mainly of palliatives, viz., rest and hip baths to subdue uterine irritation; vaginal injections to secure cleanliness, and prevent excoriation; occasional digital examination, so as to detect any fragments of bone that might be presenting at the os, and to assist in removing them.

These are plain rational measures, and beyond them we shall scarcely, perhaps, be justified in venturing. Nevertheless, under certain circumstances, I would not hesitate dilating the cervical canal, so as to permit of examining the interior of the womb, and of extracting any fragments of bone that may be easily accessible; but unless they could be thus easily reached and removed, the safer course would be to defer, for the present, interfering with them. While thus offering an opinion, I freely concede that this is one of those important questions which can only be decided by the results of direct experience.

ART. XV.—*Case of Large Polypoid Growth of the Uterus in a Young Girl, with Observations.* By S. L. HARDY, M.D., F.R.C.S.I.; Physician Accoucheur to, and Lecturer on Midwifery and the Diseases of Women and Children, Steevens' Hospital; Physician to the Institution for Diseases of Children, Pitt-street, &c.

IN several forms of uterine disease hemorrhage is frequently the first symptom which attracts attention, and induces patients to seek for medical advice. This is remarkable, particularly in polypoid growths, where it often constitutes a most prominent and dangerous feature of the complaint, even sometimes in cases of very small polypi. The following case illustrates to what a size those growths may attain before the existence of any other symptom:—

A. C., aged seventeen, a well-formed country girl, was under my care in Steevens' Hospital. She informed me that menstruation had commenced when she was fifteen years old. Two years after this she was affected with considerable loss of blood, which continued for four months without intermission; the discharge then became watery, and occasionally hemorrhagic. A tumour was at this time perceived by her in the vagina, which sometimes protruded externally. Pain in the back and epigastrium became very distressing.

Dr. Cahill, of Mullingar, was now consulted (I am indebted to him for the history of the case previous to her coming to hospital, and after her return to the country, until the time of her death). Dr. Cahill writes:—"She had repeated attacks of uterine hemorrhage, and a tumour as large as a child's head filled the vagina. In consultation with Dr. Stokes, of Mullingar, it was determined to put a ligature on it. The operation was very difficult. In the manipulation there was prolapse of the uterus, extruding a large fibroid tumour, with a narrow neck, traversing the cervix uteri. Having applied a ligature, the tumour was cut away; no bleeding followed, and the uterus was replaced. The cut surface was touched occasionally with nitrate of silver, and under suitable treatment her anemic symptoms disappeared. Two months subsequently the tumour had attained its former dimensions, with all the distressing accompaniments that had so reduced her system previously. The

operation was again had recourse to, the acid nitrate of mercury being lightly used immediately afterwards. For a time her health again improved, and I lost sight of her."

It was during the interval of Dr. Cahill's seeing her that she was in Steevens' Hospital. I found that the tumour had grown so large as to completely fill the vagina. A ligature was applied which removed this enormous growth; no hemorrhage followed, the general health greatly improved; and, a few weeks after the operation, there was, for three days, what seemed to be a regular menstrual period. Shortly afterwards, on examination, the os uteri was found closed, and nothing of the tumour to be either seen or felt. Externally, behind the pubes, there was no remarkable enlargement. She returned to the country, and, in about three months from the time of leaving the hospital, she again consulted Dr. Cahill, who, in continuing the history of the case, says:—"When called to her there was profuse hemorrhage and pain. The tumour was lying on the bed, its dimensions exceeding that of a large placenta, and divided into three lobes, one of which, the largest, descended, by a narrow neck, through the os uteri; a second took its origin from the root of this, and the third, nearly as large as the first, grew from the lip of the os. This whole mass, including the elongated cervix, had been outside the vagina for twelve hours. Every attempt to handle it increased the hemorrhage. Separate ligatures were applied with great care, and the whole excrescence removed without increased loss of blood. She was much improved in her general health after the operation. No further hemorrhage followed, but she suffered from excessive sanious and purulent discharges, to abate which she used astringent injections."

Dr. Cahill continued to watch the case; and, five months after removing the tumour in the manner above stated, wrote me the following statement:—"At length the poor girl has succumbed to the fell disease that gradually exhausted her vital powers. Day by day she became weaker, the discharges latterly having lost their sanguineous character, and the tumour diminishing in size. Her stomach became so irritable that nothing settled on it. No *post mortem* examination would be permitted."

I published a somewhat similar case in this Journal for May, 1855. The woman was aged thirty-nine, and had given birth to two children. A large tumour grew from the lip of the os uteri, which was several times removed, but rapidly returned. At length the patient sunk under constant fetid discharges. A drawing is

given which represents the appearances of the uterus and tumour after death.

Uterine polypi are equally frequent in both single and married life, but they are not common before middle age. In a table, by Malgaigne, of the ages of fifty-one females in whom polypi were found, collected from the works of Levret, Herbencaux, Roux, Leblanc, and the theses of the faculty, the youngest women of the number were four whose ages varied from twenty-six to thirty years.[a] Of Dr. M'Clintock's thirty-four cases the ages were from twenty-five to sixty. In various other published cases, and in those which have come under my own observation, I have met with none in which a patient was nearly so young as in the present instance. Scarcely had the age of childhood been passed, and the uterus commenced its regular functions, when this formidable disease invaded it. The girl, when first attacked, was little more than sixteen years old, being about *nine years younger* than any patient whose case is on record, so far as I could ascertain.

In comparing the progress of this with the case referred to, that I have already published in this Journal, I find that it was more rapid in reaching its fatal termination. It occupied but fifteen months, whereas the other extended over two years.

The method of removing the tumour (viz.) by cutting it off, instead of waiting for the more tedious one of the ligature, was particularly beneficial, as it saved, greatly, the risk of irritative fever from the fetid discharges which should have attended the slower process of separation; besides, by this plan, opportunity was afforded for making applications to the diseased surface. Unfortunately, however, nothing seemed to stay the onward progress of the disease. After I had removed the tumour, in hospital, the patient's health improved so very much under the use of regimen and medicine (as I afterwards ascertained it had done previously under Dr. Cahill's care) as to raise hopes that the disease might not return, particularly as there seemed to be a menstrual period of a healthy character, and the uterus had no symptoms of the complaint. From this, until some time had been passed in the country, it appeared to slumber, but again showed itself, and in its most aggravated form. Dr. Cahill removed the large growth, as stated in the case, but the constitution seemed to have become seriously undermined; for although, for a time the health improved, yet the

[a] See Dr. Churchill on Diseases of Woman, p. 333, new edition.

discharge continued and became very offensive. The stomach then lost its tone, and was so very irritable it could not retain food.

From this until the patient expired the tumour did not again increase in size; in this respect the case agreeing with the one alluded to; in one more very unfortunate respect they also correspond, which is that both patients were, for the latter part of their lives, at their own homes, where they were unable to obtain many comforts both in care, diet, and medicine, which might have lengthened their lives somewhat, or at least rendered their sufferings less intense.

Fetid discharges, such as those patients suffered from, are frequently very distressing in uterine diseases; and when neglected greatly hasten the fatal termination of the case. It is therefore very necessary to have a variety of lotions which may be syringed into the vagina two or three times daily—such as will have the effect of, at least, preserving cleanliness—of which I do not know one more agreeable and soothing than infusion of bran, to which, if requisite, anodynes may be added, as decoction of poppy heads, &c. When fetor is present they should be suited accordingly. Dr. Churchill speaks highly of the advantages he derived from injections of nitrate of silver, twice a-day (in the proportion of ten grains to the ounce of water) in a case of cancer, in which there was fetid smell.

In some instances, where injections are either inapplicable, or patients have an objection to them, the discharges may be deodorized by peat charcoal. In a case of cancerous ulceration of the uterus under my care the fetor was of a most unusually offensive odour. It rendered the patient wretched, and deprived her of appetite. I had peat charcoal, enclosed in small bags, placed at the vulva; the discharge was, in this way, immediately absorbed as it flowed out of the vagina, and so completely deprived of all smell that nothing of it could be detected.

Pain is another accompaniment to those uterine diseases which requires to be met by a variety of remedies. It was a very prominent feature in the above cases. For its relief I frequently employ tincture of Indian hemp, given in combination with tincture of hyoscyamus. The advantage of this medicine is that it causes no uneasy sensations of the head and stomach, such as follow the use of opium, nor does it constipate; where hemorrhages occur the styptic effect of Indian hemp renders it peculiarly applicable. Should it cease to relieve, lactucarium, conium, lupuline, and several others may be resorted to, if desirable, before administering opiates.

Irritation of the rectum and bladder, occasionally, give considerable uneasiness, and are sometimes very difficult to manage. I lately attended a patient with simple excoriation of the os uteri, whose greatest discomfort arose from incessant irritation of the bladder. Before I saw her an examination for calculus had been made, fearing this was the cause of such great distress. Hip baths, anodyne pessaries, supporters, and many local and general methods, were tried without giving the least relief. A lotion of five grains extract of belladonna and three of nitrate of silver, to the ounce of water, were injected, tepid, into the bladder, and retained for several minutes. This, for a time, enabled her to remain longer undisturbed than any of the former remedies, but at length it ceased to be useful. Balsam of copaiba was then given, and immediately relieved. So long as the stomach could bear this medicine the bladder was at ease; but no sooner was it omitted than the distress returned, and again ceased on its being resumed. This condition of the bladder continued for a considerable time after the uterine disease was cured.

I have given immediate relief, in irritation of the bladder, by injections of chloroform vapour. In one case the patient had been suffering for several months from very frequent calls to micturate. After the first injection she was able to walk nearly two miles without even once being compelled to pass water. The second application removed the complaint.

Chloroform, in the liquid form, may be injected into the bladder for cases of irritation, mixed with sweet oil. It should be repeated at intervals (if found beneficial) until the distress of the organ is diminished or permanently removed.

Art. XVI.—*On Chloroform in Midwifery Practice.* By Charles Kidd, M.D., Member of the Royal College of Surgeons, England; Associate Member of the Surgical Society of Ireland, &c., &c.

In a previous number of this Journal (May, 1863), Dr. Johns has carefully compiled everything ever alleged *against* chloroform, but has not stated what the authors so quoted have said, or may have said, in favour of it. Thus, to cite one name brought prominent, Dr. Gream, who was at one time (ten years since) as ardent an opponent

of chloroform as Dr. Johns himself, the reader is led to think, from antique archives, Dr. Gream is still opposed to it; but it so happens this gentleman is now one of the greatest advocates for chloroform in England, and, as generally known, was engaged specially to administer it not long ago on the most important public occasion of the year. Dr. Gream, I may say, stated it openly at the London Obstetrical Society, that he wished, in the strongest terms, to renounce all his old chloroform statistics and errors; and whereas he used to give it in pints, now he did as much good with drachms or half ounces. Moreover, he now looks on chloroform as a real blessing and benefit to the poor woman in labour: but his views about ten years ago are those that have been quoted.

The leading observations made by me at the latter end of the 1860, *Anæsthetic Aid in Midwifery*, have since been more and more tested, and have proved to be true—especially as to chloroform in natural labour attended with excessive pain; the immunity or freedom generally of lying-in patients from chloroform accidents; chloroform in cases of twins or others requiring versional delivery; the necessity of avoiding exhaustion by chloroform, on the part of the patient, from long-continued ineffectual "pains" in labour; as also exhaustion and irritation in some forms of puerperal convulsions; the reflex or epileptic form of convulsions especially, &c., &c. One physician has since published three instances of fatal puerperal convulsions, brought on apparently by the reflex irritation of passing the accoucheur's hand into the uterus to remove adherent placenta. From what we now know indeed of the efficiency of chloroform in such cases, it is most probable that the administration of this agent in these cases would have prevented such convulsions. The predisposing cause of such convulsions is sometimes intense pain suffered by the woman during labour, but which nothing can lessen so satisfactorily as inhalation of well-regulated doses of this anesthetic. It is not impossible, as observed by Van der Kolk, that in all such cases that irritation of peripheral nerves (notably in some forms of fits from irritation of the external genitals) is reflected directly back to the *medulla oblongata*, something like the impressions of the cells or molecules of a galvanic telegraph; this irritation then acts on other roots of nerves (by vital induction), lying side by side at the the base of the brain, all which molecular action chloroform stops for a time. The present views of Dr. Murphy, Dr. Tyler Smith, as well as the experience, matured and valuable, of the late Dr. Rigby, are all equally overlooked by Dr. Johns. From letters and from

frequent intercourse, especially with Dr. Murphy (who perhaps understands more from experience about chloroform in midwifery than any other practitioner in London)—from letters received from almost every eminent accoucheur in Europe and America, I am more and more satisfied that there is but a very shadowy foundation for the objections now brought forward out of old books. The chemical speculations of Dr. Jackson, that formyle separates from the chloroform in the blood, as also cited, have been long ago exploded: chloroform is not altered at all in the blood.

The statistics quoted by Dr. Johns are so self-condemnatory that they can never influence anybody. Let us only shift his phantasmagoria of figures a little, let the reader, if a surgeon, compare thus strangulated hernia cases brought to hospital: some require to be operated on UNDER chloroform—some require no chloroform, no operation! Dr. Johns now compares the statistics of the former with the latter, and says the deaths are greater where the chloroform was given, *leaving out the element of the operation*, or a brisk cathartic after it, recommended out of old books or by giant surgeons of former days—figures here are a delusion.

If there be a weak point about chloroform in midwifery, it is in cases attended with hemorrhage. I have often admitted this, but not from the theoretic reason that its action is on the heart. I do not believe chloroform acts on the heart at all in the popular sense in which it is supposed, nor do I think there is the least foundation for the other parts of the thesis of Dr. Johns, that it predisposes "also to puerperal inflammation, chest affections, and to other diseases detrimental to health and life." Nay, we are told by him that the chloroformic puerperal fever became "epidemicised," which I submit is a self-evident but self-contradictory proposition. Even in the statistics quoted we have at least a dozen disturbing elements in the "law of causation," which would require, according to the equation of "variables" some hundreds of thousands of cases, both under and not under chloroform, to fix the mischief on the latter agent. We are told none of the particulars of the bad convulsion cases or versional deliveries that called for the anesthetic, but simply that while *without* chloroform the mortality is pretty equally 1 per cent, that by adding a heterogeneous number of bad cases with chloroform, it is 1 in 85, or even 1 in 17 (with three notes of admiration), or even in Denham's cases, 56 in number, 1 in 14!—in fact, 1 in anything at all, as there is no sequence or law of causation of any kind in the matters thus incongruously heaped together. In the subsequent paragraphs

as to puerperal convulsions during Dr. Shekleton's tenure of office, as to hemorrhage, &c. (p. 355), the numerical method is totally nugatory: we are comparing equals with unequals. The hopeless confusion of Dr. Johns' figures is not in the subject itself, but in giving a false value to such contradictions or statistics with too narrow a base for sound induction. We might as well compare lithotomy in children without chloroform and that operation in oldish men with it, and ascribe the change of mortality to the anesthetic. In the only place there is a gleam of light it is stated that in 99 cases of perforation 9 died of 29 who had chloroform, but of the remaining 70, where it was *not* employed, only 6; they died of puerperal fever. But then it had become "epidemicised," and poor chloroform gets the credit of the mischief of this epidemic.

Dr. Ferguson is quoted, who says chloroform does not destroy uterine muscular action, from which Dr. Johns dissents; but this, after all, is but a misuse of words: it is in reality a question of dose. In small doses chloroform acts exactly as Dr. Ferguson says; but in large doses, as Dr. Johns alleges, explaining the passing observations also of Dr. Murphy and Dr. Barnes, that they too found version difficult under the early stages of anesthesia; but no one whatever now doubts the effect of a large dose.

Dr. Robert Lee and Dr. Ramsbotham, it is stated, have reason to fear epilepsy and puerperal mania from chloroform; but the only clear way of understanding these views is to hear either of these authorities outdoing even Dr. Johns in their dread of chloroform, and to see that puerperal mania may occur as a coincidence; it may come on whether chloroform is given or not. More than one of our higher midwifery authorities in London, so quoted in books, are supposed to be thus unfavourable to chloroform; but some, like Sir C. Locock, have admitted that they have not attended midwifery cases since chloroform came into use. It is only fair to the younger men to say of the older, they admit that they have no experience, and wish for none of this poisonous drug. Yet my friend Dr. Brown-Sequard recommends it as a cure for epilepsy, and Simpson as a cure in puerperal mania—these very diseases where it was believed to be fraught with peril by Dr. Lee or Dr. Ramsbotham.

A useful and practical debate on anesthetic aid in midwifery took place in the London Obstetrical Society, at the end of the year 1860, consequent on my reading a few observations on "Obstetric Operations" to the society. The following are notes of that debate.

Dr. Tanner stated that he had never found chloroform do harm,

but much good; and it sensibly shortened the after period of convalescence. If he feared hemorrhage, he gave a large dose of ergot towards the close of the labour, and did not object to the use of chloroform as well. Dr. Barnes doubted the necessity of using chloroform in forceps cases and turning; he had given it in a case of adherent placenta, and witnessed great prostration from it. He had been especially gratified with its use in cases of great nervous excitement, and where convulsions seemed to impend. He believed he had thus averted convulsions, and had certainly accelerated labour. He would like to know what progress chloroform had made in Germany, where interference in labour was so much more general. Dr. Gream made a full recantation of all his former opinions so opposed to chloroform: he believed there is no city in the world where chloroform is now so much used in midwifery, and amongst the upper classes of society, as in London; still there has not been a single accident in about 40,000 cases. For three reasons he believed chloroform most beneficial in labour: it removed pain, it rendered turning more easy, and it facilitated recovery. The only detrimental effect he had observed was in protracted labour with pelvic contraction, where it seemed to cause delay. He had seen fewer cases of hemorrhage also since he had employed chloroform; indeed he had exhibited it to patients habitually subject to this occurrence, but without the expected hemorrhage supervening. He had found inhalers and machines to do mischief; he preferred a common tumbler and clean pocket-handkerchief. Dr Druitt gave similar testimony as to the use of chloroform in hemorrhage cases. In cases of protracted labour from rigidity, such as happen in robust women who marry rather late in life, the blessings of chloroform are incalculable. No amount of torture equalled that which many women endure from excessive uterine action and *quasi* inflammatory rigidity of the os; and here chloroform agreed well with any other proper remedy (opium and emetic tartar, for instance); the only reservation is that chloroform be used in the minutest quantities; two drachms, he thinks, is enough in most labours, a few drops at a time, to imitate the normal condition of labour, that is, a short snatch of refreshing sleep at the end of every contraction (after each of the "pains"), and a little drowsiness beyond. Mr. Browning and Dr. Rogers were also in favour of chloroform in complicated and difficult cases. Dr. Graily Hewitt, from published cases, was doubtful as to the value of chloroform in puerperal convulsions, and cited a case from the American journals (a "most absurd case," as another

speaker termed it), where, from the presence of uremic symptoms, chloroform was given to anticipate or ward off convulsions, but seemed to bring on plunging and convulsions. Dr. Tyler Smith agreed with nearly all that had fallen from the previous speakers in favour of chloroform in obstetric practice. He thought it might be laid down as a general principle, that besides allaying pain, it is useful where it is desirable to moderate excessive action of the uterus (version cases) and to promote dilatation and relaxation; but is contraindicated if there be inertia, or if hemorrhage be expected. He had known it to stop a labour in its course midway, and he believed *post partum* hemorrhage more frequent after its use than in cases without it. He had no doubt of its usefulness in difficult instances of turning; he had met such cases where, without chloroform, that operation would have been utterly impossible. He had seen a form of mania after its use, as well as bad cases of ruptured perineum. He believed "idiosyncracy" had something to do with accidents from chloroform. He knew two ladies in apparently good health in whom a few drops of chlorofrom would at any time produce repeated faintings.

On directing the attention of Dr. M'Clintock, of Dublin (then Master of the chief Lying-in Hospital), to this debate, he replied as follows:—I have accumulated a large number of facts illustrative of the uses of chloroform in natural labour, instrumental labour, version, retained placenta, convulsions, and mania, but I cannot espouse all the preceding opinions. I agree generally with those put forward by yourself. I never omit the employment of chloroform in version cases, and as a general rule administer it in forceps and crotchet operations, as well as in manual extraction of the placenta *if the uterus be contracted.* In some few cases of eclampsia chloroform had a marked effect in diminishing the severity and frequency of the fits. There has been no fatal accident from its employment in this hospital; and my predecessors, Drs. Sinclair and Johnston, published 313 cases where it was given.

Professor Doherty (Queen's University), in differing from the views of Dr. Barnes, mentioned the particulars of a very apposite case, a woman with a projecting promontory of the sacrum, in labour some hours, saved by chloroform and version.

It is, of course, not desirable to mention names so freely, but many journalistic errors are perpetuated by stereotyped fancies as to our "highest authorities."

Dr. Johns is pleased to mention my name in a doubtful sense as

having seen "about 300 cases of chloroform accident restored to life or rescued after they had been pronounced dead." But my position, I would wish to explain, as hospital reporter for the *Lancet* and other journals for a period of a dozen years, during nearly all which I attended twenty London hospital theatres, and saw from thirty-five to forty operations a week under chloroform, or about two thousand every year, will explain the opportunities I have had of observing chloroform cases; and as to carrying a portable galvanic chain or battery in a great-coat pocket, it seems to astonish Dr. Johns, but it is as easily carried as a midwifery forceps or student's dissecting-case. Our giant hospital surgeons, our Astley Coopers, may have advised strong purgatives after hernia operations, and living surgeons now at Guy's turned chloroform into ridicule, and with M. Velpeau said anesthesia was impossible: so of the early opinions of Dr. Gream. We must not, however, run after the mirage of great names once upon a time, but rather examine into actual facts of the present day.

A very interesting and practical communication was presented to the profession by Dr. M'Clintock, of the Dublin Lying-in Hospital, on the propriety of versional delivery in contracted pelvis, and the extreme value of chloroform in such cases, since 1860: all these patients except one or two were placed well under chloroform. Some will, doubtless, call to mind this interesting detail of seventeen cases of obstructed labour, where mothers had previously had dead children, and where craniotomy operations were deemed so orthodox and of such saving value; yet by means of chloroform and version nine living children, and seven with heart pulsation, were gained for the overjoyed mothers, and craniotomy saved. We hear of 300 such cases from Scotland, with most excellent results; and Dr. M'Clintock has since directed my attention to 400 cases of various kinds under chloroform, and to 313 in the practice of Sinclair and Johnston, with the most gratifying results, and not a single case of accident The small town of Copenhagen has had in one year also fifty-three cases of version, all under chloroform.

I need scarcely multiply authorities in favour of chloroform in the practice of midwifery. Meeting not long since my friend, Professor Simpson of Edinburgh, at operations in London, I was pleased, on a very full comparing of notes, to find that he almost entirely agreed with the views adopted by me. We have had this year a report of our Medico-Chirurgical Society, the obstetric portion of which was confided to such experienced observers as Dr. Priestly, Dr. A. Farre,

&c.—that report speaks for itself. The study of the natural action of chloroform or ether, in fact, in hospitals and private practice, rather than imperfect statistics, can scarcely lead astray. A simple napkin, pinned into the shape of a cone, answers as an inhaler. "Chloroform and ether mixtures" are now beginning to be used, as pure chloroform is too sharp and strong; but for myself, as far as I can yet see, I would as soon order a blunt lancet or bistoury from an instrument maker. These ether mixtures are very tedious in their application; they have been supposed to be partial anesthetics and not to enter the blood, but such a supposition is entirely fabulous, and in large surgical operations they cause a tendency to sinking and collapse immediately after the operation: it will be found, in fact, that the ether and alcohol cause common drunkenness, whereas pure chloroform, used in half drachm doses, escapes quickly from the blood. In a memoir read within the last few months to the Academy at New York, the superiority of chloroform as compared to ether was generally admitted (though ether is the national and favourite anesthetic in that country)—chloroform more especially in cases of rigid os uteri, eclampsia, and undilating perineum. One speaker had given it in extensive heart disease, in patients of all ages, from the child of thirteen days up to persons of seventy; he had taken it himself about forty times. Another had given it in eighteen cases of forceps and fourteen of versional delivery; and he believed labour shortened and made more safe by such means. Professor Martin, of Jena, as the result of one thousand cases under chloroform, confirms these views. We have had two more debates on chloroform in London "societies" lately, agreeing with these debates in New York and Germany.

Finally, as to figures and authorities: even admitting the inductive force of the statistics adduced, the carefully arranged large and selected tables of 16,414 deliveries, and these remarkable 6,634 of Dr. Shekleton's, "*where this pernicious drug* (chloroform) *was used*," as Dr. Johns tells us; but admitting, with Dr. Whewell, that in the inductive logic, equals added to unequals (as in the alcohol controversy, where the late Dr. Todd was extinguished, and the like), that we often arrive at the truth, by adopting the conclusions not arrived at by the figures. Keeping, too, in mind, as to authorities, what Horace says, that there were two ladies respectively known as Venus—one old, the other young: and so of our old and new "greatest authorities." Having yet a great dislike to half truths and whole obscurities, I cannot help feeling and

perceiving, on reading the paper of Dr. Johns, that his selected figures arrive at conclusions to be avoided, as he compares large general statistics, admitted to be thirty or forty years old, in healthy years, when chloroform was not discovered, with statistics of last year, when chloroform was in fashion in bad cases and puerperal fever epidemic—and admittedly an unhealthy year.

It is true, as Bacon reminds us, as to his quaint idols of the tribe, that too often, as in such puzzling statistics, and epidemics, and obscurities, our "dry light generates its own system, for man always believes more readily what he prefers." We may go also too much by routine classic authorities, "medicine being a science more professed than laboured, the labour rather in a circle than in progression, much iteration but small addition." As we depend so much, however, on the inductive method, we should look at it on every side. Sangrado was described wittily as a man who used his patients as a vintner does his wine vessels, by letting out their blood and filling them up with water: he was only following the lancet routine of his day. Roger Bacon places, indeed, the chief impediment to the progress of knowledge in the world in the influence of authority. Yielding to such seductive influence, however, as to Dr. Gream and others, we have had this

"Macies et nova febrium
Terris incubuit cohors,"

this chapter of horrors, where everything ever said against chloroform has been curiously and industriously compiled.

I would only say, in conclusion, as to statistics and medical prejudices, but open to conviction otherwise, that I very much doubt the alleged great value of the "numerical method"[a] as at all applied to this subject of the use of chloroform in midwifery. Chloroform is a matter of charity to the woman in labour, and I would as soon be led by figures in giving charity to a destitute man in the street or to a

[a] In the usual lectures at our College of Physicians, London, this year, it was shown by algebraic formulæ that the admirable theories of Paget and Hughes Bennett—that inflammation is to be looked on and treated as deranged nutrition—are irreconcilable with the venerable views of elder authorities and fashionable "St. George's" men, and a severe inductive logic, that algebra required about a million or two of typhus or pneumonia cases before Hughes Bennett could begin to generalise, 300,000 cases would scarcely be sufficient! So far Dr. Barclay: and then followed Dr. Markham on bleeding and "type of disease"—who, by another series of involutions of the "numerical method," showed we are the most dissatisfied and illogical people under the sun, for there is not a pin to choose in typhus between wine and venesection with water-gruel!

ragged school: it is also perfectly free from danger. Even since I came to understand the "cookery" of the medical statistics of the Registrar-General in England, to meet popular prejudices on such subjects as chloroform, change of type in disease, danger of feeding prisoners in gaols on too much bread and water, for fear of increasing crime and sthenic inflammations, the danger of wine in typhus, &c. When we know that as in the figures in a wall-paper the weekly statistics are filled in always to the same pattern, one ceases to have much faith in figures. I know there is not one well-attested death from chloroform in midwifery in all our journals; three such cases have recently been quoted, or alleged, in America from England; but I have examined into the cases: in one, for instance, the death occurred seventeen hours after the patient had perfectly recovered from the chloroform; she died of laceration of the vagina, from crotchet or forceps. And so of the others; but in vain one asks our weekly journals to correct the error of routine. "All superstitions," says John Stuart Mill, "are inductions of the Bacon kind;" and we have venerable popular inductions of this kind, not to be disturbed, that chloroform is most fatal in midwifery. Insurance actuaries, who know nothing of medical prejudices one-sided and journalistic, are the only men who get any good out of medical statistics. If we visit the accidents of crotchet or forceps on a thing running parallel with them, namely, chloroform, it is not fair or logical. I am willing to give Dr. Johns the benefit of his inductions or hasty generalizations; but he surely ought to know that they are but coincidences after all. I had a conversation once with M. Quetelet, at Brussels, on medical statistics. "They are but finger-posts in the cross-roads of medical journalism," said this deep observer. We have parallel roads too—I often think parallel lines—that have no connexion, that never touch; and some such are the alleged facts I have felt it my duty to comment on. We compare a few of the worst cases requiring chloroform for versional deliveries, or instruments, or puerperal convulsions, with others (16,414) of much less gravity, where chloroform was not required (for chloroform, it must be remembered, is not given as a luxury or charity in hospitals, but as a necessity). We have taken as a standard this (1 in 100) one per cent. of deaths in a healthy year of a mass of simple labour cases in the early part of the present century, when the population of Ireland were well fed and nourished, and nature effected the cure, and, no doubt, without chloroform; and we have contrasted this standard with a higher mortality in an unhealthy year, then the Irish

population deteriorated, puerperal fever epidemic. Chloroform with some is a very petty subject, not of more moment than shaving the pubis for a hernia operation—a subject of no literary interest, one not to be found in the classics of Sydenham or Abernethy. I have even heard it urged, at our first London hospital, that as our "grandmothers" did without it, so ought the women of the present day; but such arguments would equally apply to metallic ligatures, or ligatures at all in surgery, as our predecessors stopped hemorrhage with actual cauteries—they would apply to the use of vaccination; they, in a word, stop all progress, and our science if not progressive is mischievous. Indeed, our want of progress in anesthetics in England is leading to the quacks undertaking it—a curious and instructive fact, but one we have not any desire here to follow. Morton's battle in America this year, in the Congress, as to the original discovery of the anesthetic properties of ether, the greatest event of the nineteenth century, excites no interest compared to our "shopkeeping" esteem for secret compounds of chloroform (discount off for ready money), and encouraging prejudices against its use, especially in obstetric practice. The right observer rather studies nature and asserts what is true, avoiding prejudice and popular error, caring not for repulse or fashion.

"Nec sumit, aut ponit secures
Arbitrio popularis auræ."

Art. XVII.—*Contributions to the Surgery of the Rectum and Anus.* By Edward Hamilton, F.R.C.S.I., one of the Surgeons to Steevens' Hospital.

The Treatment of Hemorrhoids by the Écraseur.—The sweeping denunciations which have been uttered against this mode of treating piles by some authors of high practical character have created a strong prejudice against its employment, and tended much to restrict its fair trial; though for some time biassed by these opinions, more matured experience and extended observation have convinced me that were the merits of the écraseur to stand on this one application to the purposes of practical surgery, it would be fairly entitled to a place in our *armamentaria chirurgica.* Mr. Ashton thus stigmatizes the instrument:—"*Another plan for the removal of hemorrhoids and other growths emanated in Paris,*

and became a fashion for a time, but happily, in England, at least, is now little practised. I allude to their ablation by that crushing, lacerating, and unscientific machine, the écraseur, which in appearance and operation suggests the idea of belonging rather to the torture chamber of by-gone days than of being an instrument of modern surgery. M. Nelaton reports that many who have been operated on by it are now the victims of traumatic stricture of the rectum." An able reviewer of Mr. Ashton's book in the pages of this journal designates it as "a recent innovation not likely to find favour in our sight." Mr. Curling objects to its use, as being sometimes followed by hemorrhage; being tedious, and being likely to be the cause of contraction of the anal aperture.

To claim for the écraseur that its operation is always free from untoward results, would be to assert what is equally untrue of the ligature—of every surgical appliance to which we resort, as well as of everything human—but I am fully satisfied that under impartial trial in cases to which it is not inapplicable, it will realize an amount of success, at least, equal to the method so frequently placed in antagonism to it.

Ligature is only applicable to internal piles; and when employed for the removal of the external form of the disease has produced a train of consequences which have, without due discrimination, been blindly attributed to the ligature however applied, and have been urged against its use altogether. The same train of fallacious reasoning has been adopted against the écraseur, which should only be employed in internal piles; and of these there are certain varieties with a broad base in which ligature or some other mode of treatment would be preferable; our plan of operation must be suited to each particular case, as there is nothing more calculated to impede the progress of enlightened surgery than the blind pursuit *per fas aut nefas* of special modes of treating particular diseases, to the exclusion of all other means. The fact which I would place before the profession is this, that in cases where it is applicable, which experience teaches me it is in the great majority of cases of internal hemorrhoids, the écraseur is much to be preferred to the ligature.

Let us for a moment dispassionately examine in detail the objections which have been urged against its use.

Hemorrhage, primary or secondary, is only likely to occur where the movement of the instrument has been made with too great rapidity; and although blood to a small amount does issue from the

surface of the pile during its removal, or from those adjacent to it, from contact with the chain of the instrument, even this may, with care, be avoided, and I have never seen it cause any trouble. Secondary hemorrhage has not presented itself in any of the cases in which I have employed this instrument. The instances in which it has been recorded may be explained by some unusual coincidence; possibly some peculiarity of the patient's constitution, or too hasty an application of the instrument, as it is an established fact, that in the removal of other growths equally vascular, immunity from hemorrhage, primary and secondary, has been very generally accorded to the écraseur by the weight of surgical authority. While, on the other hand, cases have occurred in which very severe and alarming hemorrhage has been known to follow the use of the ligature, both at the time of its application and subsequently at its separation, so much so that Mr. Salmon advises that for several hours after the operation by ligature the patient should not be left without some one at his bed-side capable of acting in the event of this contingency. Thus, hemorrhage may be the result of one operation as of the other—in both, however, being the exception, not the rule. The second objection to the instrument, that its application is tedious and clumsy, is, I think, equally unfounded, as, assuredly the five or ten minutes required for the removal of piles by the écraseur can be most favourably contrasted with the time required for the perfect securing of the ligatures, the painful gash at the side of the bowel, the tightening of the cords in the open wound, and the ten days necessary for their detachment, during which period they remain in the rectum receptacles of filth—a source of unceasing irritation and distress; whereas on the second or third day after the operation by the écraseur all soreness has passed away, and the patient suffers no further inconvenience, and his mind is set at rest when he is satisfied that the operation is completed.

Let us now pass to the third and most serious charge laid at the door of this operation—its tendency to cause contraction of the anal orifice. The authority of M. Nelaton has been put prominently forward in support of this objection. He states (I quote from Mr. Curling, being unable to lay my hand on the particular number of the *Gazette des Hôpitaux*):—"*During about a twelvemonth I have seen a great number of patients, who have come to me in order to undergo an operation to remedy this unfortunate consequence of the removal of hemorrhoidal tumours. The stricture sometimes scarcely admitting*

the passage of a quill." But M. Nelaton, further on, states what has not been quoted by some of those who cite his authority:—"*It has arisen because not only the mucous projection, which alone constitutes the disease, has been removed, but, also, a more or less considerable portion of the skin at the orifice of the anus.*" Thus it appears either that the écraseur was employed in the removal of external piles, for which it is comparatively unsuited, or else was manipulated without the ordinary caution which even the simplest and most trifling operation requires at the hands of the conscientious surgeon.

The same imprudent destruction of the integument, at the verge of the anus, whether brought about by the ligature, by caustics, by the knife, or by the écraseur, will alike produce the same untoward and discreditable consequences.

These views have not been put forward rashly, or without having been submitted to the test of absolute practical observation for a considerable time.

The writer has employed this treatment in almost every case of internal piles, before large classes of students and practitioners in the surgical wards of Steevens' Hospital, and with a degree of success which encourages him to continue the practice; the field of observation being peculiarly favourable—the greater number of cases occurring among the Constabulary patients, who are under constant surgical supervision during their entire service in the force, and would have been returned to the hospital had they experienced any of the serious results attributed to the operation, which they themselves would not be likely to conceal; and I am not aware of a single instance in which the disease has reappeared, or the patient has applied for the relief of symptoms which could be attributed to the use of the écraseur. In private practice it is often difficult to determine the result of such operations; as, should they be attended with want of success, or any bad after-consequences, the patient is not likely again to consult the same practitioner; which is also much the case even with our ordinary applicants for hospital relief.

In the management of these cases one or two matters demand careful attention in order to ensure success. As before stated, this instrument should, almost entirely, be restricted to the removal of internal piles of the longitudinal and pedunculated variety. The broad flat pile at the verge of anus, denominated, by Mr. B. Cooper, the intero-external pile, may best be treated by transfixion with needles coated with nitrate of silver, leaving the points bare—a

plan first brought under my notice by my esteemed colleague, Dr. Wilmot, and which I have seen carried out with the best results, and have myself frequently practised. In the ulcerated bleeding pile, or the vascular excrescence, no method has yet been devised equal to nitric acid, as recommended by Mr. Cusack and Mr. Houston. The administration of chloroform is not desirable in this operation, unless in very nervous or excitable individuals, as the pain of operating on internal piles does not usually require it; and it is open to the objection that it certainly induces excessive prolapse of the bowel, whereby the surgeon is often led to remove too much of the mucous membrane and sub-mucous tissue. Chloroform, likewise, appears very much to increase the congestion of the parts, and thus to develop a tendency to hemorrhage. For similar reasons it is not, in the generality of cases, necessary, nor is it expedient, to draw down the piles with harpoon-like hooks or forceps. As in all operations on the rectum the bowels should be well cleared out by a brisk purge on the morning of the operation, chalk mixture and tincture of opium being administered on that and the following day. A pledget of fine cotton wool may be placed on the small wound, which I have never seen attended with any trouble or difficulty in healing. *The écraseur with a double action* is to be preferred to that in which one end only of the chain is acted on, as in this movement it passes over the pedicle of the pile after the manner of a saw, producing laceration and a more open wound, with greater disposition to hemorrhage, although I have myself used the latter as being of finer make.

Art. XVIII.—*Notes on the Climate of the Swiss Alps, and on Some of their Health Resorts and Spas.* By Hermann Weber, M.D.; F.R.C.P., London; Physician to the German Hospital in London.

(*Continued from No. LXXIII.—Feb.*, 1864.)

It is not my intention to give, in the present communication, a description of the health resorts and spas of the whole of the Swiss Alps; but, I shall confine myself principally to the eastern portion of Switzerland, and especially to the cantons of the Grisons, of St. Gall, and Appenzell. These cantons are much less frequented by the English than the regions of Central and Western Switzerland, but they contain some of the most valuable spas and health resorts; their scenery is, at the same time, in many parts, of

surpassing grandeur, and has in others a peculiar freshness and loveliness; and the original manners, customs, and institutions of the inhabitants are not yet so altogether effaced by the travelling public as it is the case in the rest of Switzerland.

The large canton of the *Grisons* is, above all others, rich in spas; many of these, it is true, are not provided with convenient establishments for the reception of visitors unaccustomed to the Swiss style of living; at some of them, however, we may find everything which is necessary for health and comfort, and, in addition, climatic advantages which cannot be obtained, in the same manner, in any other inhabited locality of Europe.

The most important spas and health resorts are situated in the *Engadine*, which forms, in many respects, one of the most interesting portions of Switzerland. The Engadine or Engadin is the valley of the Upper Inn, extending in the direction from south-west to north-east, from near the origin of the Inn (called by the people Acqua d'Oen) close to the Maloja Pass, near the Lombardian frontier, to Martinsbruck, near the Finstermünz Pass in the Tyrol; it is nearly sixty miles long, in some parts less than half a mile, in others more than two miles wide, and is bound on both sides by high mountain chains. The elevation of the valley above the level of the sea varies from about 3,400 feet, near Martinsbruck, to more than 6,000 feet at its upper extremity. It is easily accessible for carriages from the north or north-west by way of Coire and the Julier Pass, from south-west by the Maloja Pass, from the south by Tirano, the valley of the Poschiavino and the Bernina Pass; and a good carriage road will shortly be opened from the Tyrol *via* Nauders and Martinsbruck. The whole valley is divided into the Upper and Lower Engadine, the former extending from near the Maloja to below the village of Scanfs, the latter from there to Martinsbruck; there is a remarkable difference between the two divisions in the character of the scenery, of the inhabitants, of the climate, and the mineral springs.

The *Upper Engadine*, elevated between 5,100 and above 6,000 feet, is the highest inhabited valley in Europe; or, at all events, there is no other valley of such an elevation where such populous and thriving villages are to be found. On the north-west side of the valley is the group of the Engadine Mountains with the Piz Lungen, Piz Alban, Piz Munteratsch, Piz Nair, Piz Ot, and other peaks approaching or surpassing the height of 10,000 feet; on the south-east side the mighty Bernina chain, with the Caputschin, the

Piz Corvalsch, Piz Morteratsch, and other mountains, rising in the Piz Bernina itself to the height of more than 13,000 feet. The Bernina group, which separates the Swiss valleys of the Engadine and of Bregaglia (Bergell) from the Italian Valteline (Valtellina), is scarcely surpassed by any other part of Switzerland with regard to the vastness and beauty of its glaciers, and the loftiness of its mountains; at the same time the richness of the green in the valley of the Engadine and on the inclines of its mountains is equal and superior to that of any other region of Europe, especially in a similar elevation; and the beauty of the scenery is much enhanced by lakes of considerable dimensions, and by the cheerful aspect of the villages, some of which, as that of Maria, near the Lake of Sils, belong to the finest villages of Switzerland.

To the medical man the most interesting point in the Upper Engadine is *St. Moritz*, with its chalybeate springs, and its Kurhaus. The village of St. Moritz lies on an elevated incline near the lake of that name, 6,024 English feet (1,836 mètres) above the level of the sea, according to Dufour's most recent measurement; the spa and Kurhaus lie rather lower, at a distance of about an English mile from the village, 5,804 English feet (1,769 mètres) above the level of the sea (Dufour). There are three sources, all of chalybeate nature, but only two of them are, at present in use, the "old source" and the "new source." The most accurate analysis, performed by Drs. A. von Planta-Reichenau and Kekulé in 1853, gives the following composition of the water for 1,000 grammes (2·2046 pounds avoirdupois):—

	OLD SOURCE Grammes[a]	NEW SOURCE Grammes
Carbonate of lime	0·7264	0·8911
Carbonate of magnesia	0·1254	0·1583
Carbonate of iron	0·0237	0·0329
Carbonate of maganese	8·0041	0·0043
Carbonate of soda	0·1904	0·2074
Chloride of sodium	0·0389	0·0404
Sulphate of soda	0·2723	0·3481
Sulphate of Potash	0·0164	0·0205
Silicic acid	0·0381	0·0495
Phosphoric acid	0·0004	0·0006
Alumina	0·0003	0.0004
Bromine, iodine, fluorine	Traces	Traces
	$\int a$ 1·4364	$\int a$ 1·7535

[a] The gramme=15·4325 grains Troy.

	Cubic Centimetres		Cubic Centimetres
Carbonic acid[a] (free) -	1622·0	- -	1599·9
Nitrogen - - -	4·50		
Oxygen - - -	1·27		
Temperature	5·62° cent. (4208° F.)		4·3° cent. (39·7° F.)
Specific gravity (at 14° centigr. or 57·2° F.)	1·00215	- -	1·00239
Quantity of water per minute	22 lit. (rather less than 39 imperial pints)		$2\frac{3}{4}$ lit (less than 4 pints)

A glance at these figures renders the value of both springs evident. The amount of the carbonate of iron is moderate, the large proportion of carbonic acid (about thirty-three cubic inches in the pound) renders it easily digestible, and the admixture of the carbonate of soda, magnesia, and lime, is of the greatest importance in most cases where irritability and other derangements of the digestive organs are complicated with the oligemic condition; the other substances, too, are, in many respects, valuable, and the low temperature of the water increases probably its tonic quality, and is, to the majority of invalids, very grateful, while it can be easily warmed without great change in its constitution, for those who do not bear the cold fluid. The springs of St. Moritz are, as far as my knowledge goes, the coldest chalybeates in Europe; those of Imnau, near Hechingen, in Hohenzollern, being probably the next coldest, with a temperature of between 6·5° and 9° cent. (43·7° to 48·2° Fahr.).

The springs of St. Moritz were already in great reputation at the time of Paracelsus, who regarded them as most efficacious; Conrad Gessner, too, mentions them; but they had been nearly forgotten during the last century and the beginning of this, and were used almost only by the inhabitants of the adjacent countries, when a company of shareholders improved the "captage" or the conduction of the springs from their subterranean origins in the rock to their appearance above the ground, and erected an excellent "Kurhaus" containing baths and hotel accommodation for about 100 visitors. Since then St. Moritz occupies the first place amongst the spas of Switzerland.

[a] The carbonic acid is measured at the temperature of the springs, and under the mean atmospheric pressure of the place, viz., 0·6152 mètre (rather more than 24 inches).

The chalybeate baths are prepared by the heating of the mineral waters, by means of steam, to the temperature of 25° to 30° cent. (77° to 86° Fahr.), and it seems that the water loses in this manner only a small proportion of its active ingredients, as, according to the analysis of Dr. A. de Planta, the water thus warmed to 25° cent. (77° Fahr.) retains 69·6 per cent. of its original quantity of carbonic acid, and 97·2 per cent. of that of iron; and heated to 32·5° cent. (90·5° Fahr.) it retains 23·6 per cent. of carbonic acid, and 83·6 per cent. of iron.

The water is generally taken early in the morning, before breakfast, in doses of from half a tumblerful to as many as six whole ones (6 ounces each), with an interval of about fifteen minutes between each glass; and occasionally, but rarely, a second dose of one or two tumblers is taken in the afternoon, between the early dinner and supper. In some instances, when the cold water is not well borne, it is mixed with warm milk or whey.

The baths are usually taken between the light breakfast at eight or nine a.m., and dinner at one p.m.

The taste of the waters is peculiarly refreshing; it is sparkling, perfectly transparent, and, as already stated, remarkably cold. The baths, too, are very agreeable. As the amount of active ingredients contained in the water is greater the less the water is heated, it is advisable for many invalids to take the baths not above 75° or 80° Fahr., if they do not feel chilled by so low a temperature. The duration of the baths at St. Moritz is rarely extended beyond twenty minutes. On all these points, however, no general rules can be given; but every single case ought to be considered for itself, and treated accordingly. It is, therefore, not advisable for visitors to use the waters according to their own judgment; but they will always do well to place themselves under the treatment of the medical men of the place who are thoroughly acquainted with the nature of their remedy, and its effects on different constitutions. Dr. Brügger, of Samaden, who resides during the season at the Kurhaus, deserves to be highly recommended as a well informed physician, and much of the present improved state of the spa and of the Kurhaus is owing to his exertions. Besides him Dr. Berry, of Coire, visits the spa during the Summer months; he was one of the medical officers of the Swiss Legion in the Crimean War, and possesses, in every respect, the highest esteem of his countrymen.

The season of St. Moritz extends from the middle of June to the

middle of September; July and August being the best months. Hitherto the Kurhaus has been able to receive, at the utmost, about 100 visitors; but, by this time, an additional and larger building is probably completed and thoroughly furnished, so that, in future, about 200 visitors may find room in the immediate neighbourhood of the spa itself, while in the village of St. Moritz several good inns, and some private houses offer accommodation to an equal number. It is, however, advisable for every one who intends to use the waters to apply early, by letter, to the manager of the Kurhaus, or to Dr. Brügger, otherwise he may and generally will find, on his arrival, every room of the Kurhaus occupied, and may even have the greatest difficulty in obtaining accommodation in the village.

The stay at St. Moritz ought not to be less than three weeks, but should, in most cases, be extended to five and six, and in some even to eight weeks.

Before naming the morbid conditions in which St. Moritz has been found particularly beneficial, I will give a short description of its climate, as in the consideration of spas we ought to study not only the action of the water according to its chemical composition, but also, and much more, the combined influence of the springs, the situation, the accommodation, and the climate in general.

The situation of St. Moritz, with regard to beauty of scenery, is not exceeded by any other spa of Europe. Near the Kurhaus the valley is about two miles wide; the immediate neighbourhood consisting on the one side of meadows of the freshest green, traversed by the River Inn; on the other, of forests of larch and pine trees; the lakes of Camfer and St. Moritz being less than a mile distant. On the promenade before the Kurhaus the eye has in view not less than ten or twelve snow-capped mountains, some of which are at a comparatively short distance. In spite, however, of the nearness of these high mountains there is never felt that sense of oppression, either at St. Moritz or in any other part of the Upper Engadine, which so many people, who are born and have lived at the sea or in plains with but low hills, complain of when they stay in valleys surrounded by high mountains, as in many localities of Salzburg, the Tyrol, and the Pyrenees. The broadness of the valley, the vicinity of the lakes, and above all, the freshness of the air, are probably the principal causes of this preference of the Upper Engadine over many other valleys.

St. Moritz has another great advantage over most other health

resorts in Switzerland by having many shady walks in the adjacent larch and pine woods, the benefit of which cannot be too highly estimated in the midsummer days, when the sun is felt peculiarly hot in the thin air of those high elevations. Invalids ought to be, if possible, out of doors during the greater part of the day, even if they do not take active exercise; but without shade it is impossible for them to walk or sit in the open air for five or six hours on sunny days.

There is also no want of walks or drives of various distances convenient to invalids—as to the lakes, to the villages of St. Moritz, Camfer, Silvaplana, Sils, Maria, Celerina, Samaden, and Pontresina; and those whose strength has already been restored in some measure by the different curative influences of the place may, without great exertion, visit some of the finest glaciers in the world, and the two Alpine Passes of the Maloja and the Bernina, not to speak of the greater excursions to the Piz Languard and the Piz Ot, which are scarcely surpassed by any other points in Switzerland with regard to the vastness and beauty of the panoramic views; but the ascent of which requires a greater effort than most invalids ought to make. Almost anywhere, even near the summit of the Bernina (the Bernina Inn is about 6,800 feet above the level of the sea) they will find hospitable inns where they can rest and have warm refreshments—a matter not to be thought lightly of by invalids.

With regard to the climate of St. Moritz and the Upper Engadine in general, it has, by some been rather too much praised, while others have described it as extremely severe, expressing their views in the words—"nine months winter and three months cold." The latter description is certainly much exaggerated, and this will become quite evident when we compare the vegetation in the Upper Engadine with that found in localities of the same and even of a much lower elevation above the level of the sea. Thus the larch and arolla ("Arve") are seen near St. Moritz, at an elevation of 6,500 feet, in very good condition, and even at 7,000 feet many tolerably well developed trees may still be found, while in most other parts of Switzerland no trees are to be found above 6,000 feet, and rarely even above 5,500 feet; and in the mountains of Middle and Northern Germany the growth of trees ceases with an elevation varying from 3,200 to 4,500 feet. Potatoes are still occasionally grown near St. Moritz; some vegetables and ornamental flowers of lower regions thrive in the gardens of Samaden,

Pontresina, and Maria; and the cherry-tree is said occasionally to bear ripe fruit in the latter village, while it never does, I am informed, on the Rigi above 3,000, and on few other places of Switzerland beyond 4,400, except on the southern declines of the Alps. Barley is still grown near Pontresina as high up as 6,000 feet above the level of the sea. The richness of the green in the principal valley and in the side valleys of the Upper Engadine is most remarkable, and the number and variety of Alpine plants at the height of 7,000 feet, and higher, is likewise very great. The line of "perpetual snow" which forms a good test of the Summer temperature of the higher mountainous regions, does not descend in the Upper Engadine below 9,400 feet, according to H. H. Denzler, while in other parts of the Grisons it begins at 8,600; near the Monte Rosa, at 9,200; near the Mont Blanc, at 8,900; in the majority of the other localities of Switzerland between 8,000 and 8,400; in the Alps of Bavaria, Salzburg, and the Tyrol, between 7,100 and 8,000; and in the Pyrenees, which are situated almost three degrees more to the south, at about 8,400 feet above the level of the sea.

A similar superiority of the Upper Engadine will be found by regarding the number of days on which the ground is covered with snow, which is, according to Krättli, at Bevers (probably the coldest place in the upper part of the valley), 173 days, or five months and twenty-two days, while, according to the brothers Schlagintweit, the figure for ten eastern Alps in general is 196, at an elevation of 5,500 feet; and for the region of the Säntis in Appenzell, according to Denzler, 225 days, at an elevation of only 5,000 feet. The quantity of snow amounts in the average (1852 to 1857), at Bevers, to 102·6 inches in the year (Krättli); while it is at Trogen in Appenzell, which is only about 2,800 feet above the sea (about 2,500 lower than Bevers) 148 inches.

From these facts, which might easily be multiplied, it is evident that the Upper Engadine, compared with other regions of a similar elevation in Europe, enjoys a peculiarly mild and dry climate; it is not surpassed, in fact, by any except some of the southern declines of the Alps and Pyrenees. In spite, however, of this superiority, the visitor ought to bear in mind the words which the Italians of the adjacent Valteline apply to the valley of the Upper Inn, "Engadina terra fina, se non fosse la pruina" (the white frost), and ought to be provided with warm clothing, of which he may be able frequently to make good use, especially in the evenings and

mornings, as the changes of temperature are, as in all the high mountainous regions of Europe, often sudden, and cold days, and even snow may appear in the midst of the Summer. The frequency of such occurrences has been, however, it must be added, much exaggerated, as the snow, even if it is seen to cover the mountain sides, rarely descends into the valley itself, and has done so in four years (1856 to 1859) only seven times during the season, viz., between the 21st June and the 10th September, the only time of importance for the invalid; while white frost has been observed on forty-two days. The mean temperature during the same period, is, according to Mr. Chr. G. Brügger,[a] of Churwalden, on whose authority most of these remarks on the climate of the Upper Engadine are based, about 60° Fahr. (10·6° cent.); the mean morning temperature (5 to 6 a.m.) being 42·7° Fahr. (5·91° cent.); that of the middle of the day (1 to 2 p.m.) being 60·6° Fahr. (15·87° cent.); that of the evening (9 p.m.) 48·2° Fahr. (9·01° cent.); the mean daily difference does, therefore, not exceed 18° Fahr. (10° cent.); but can be, on exceptional days, much greater, and has been, in fact, in August, 1856, 45° Fahr. (25° cent.). Of the eighty-two days of the season, there are in the average, sunny days, fifty-six; cloudy, nine; misty, twelve; rainy, twenty-seven; there is white frost on 10·5; and snow on 1·7. Thunder storms occur on about six days. The principal wind during the season is from south-west, after which follows that from east and north-east, and then that from west and north-west, while the due west is the rarest.

The mean barometric pressure is 275 lines P., *i.e.*, more than five inches less than in London; the pressure on the surface of the body is therefore much diminished, and the air is considerably rarified.

After thus having briefly discussed the nature of the springs, of the accommodation, and of the climate, we may ask which are the morbid conditions to be benefited at St. Moritz. They are, above all, anemia or oligemia without organic disease, as caused, for instance, by abortus or excessive loss of blood in confinements, by ague, fever, and other acute diseases; scrofulous and tubercular diathesis; anorexia and difficulty of digestion, tendency to fulness and eructation after meals; fluor albus from want of tone; sexual

[a] The notes of Chr. G. Brügger on the climate of the Engadine are contained in the valuable work of Dr. Meyer-Ahrens, Die Heilquellen und Kurorte der Schweiz. Zurich, 1860. Two Volumes.

weakness in men from excess or masturbation; in all of which cases the alkaline chalybeate springs and the climate strengthen each other in their curative action; the same may be said of the hypochondriasis from mental overwork, and from digestive disturbances; in headache and neuralgic affections, coupled with anemia, too, amelioration may be expected. Advanced organic diseases of the heart, advanced tubercular phthisis, emphysema, chronic inflammatory conditions of the respiratory organs, and the pleura, and tendency to cerebral congestion are incompatible with the climate of St. Moritz.

There are several other villages in the Upper Engadine besides St. Moritz, which are already, or may become soon, more or less eligible as health resorts, such as Maria, Sils, Silvaplana, Camfer, Celerina, Samaden, Pontresina, near the magnificent Roseg and Morteratsh glaciers, Bevers, Ponte, Madulein, Zeitz, and Scanfs. Although the general character of the climate is in all of them the same, yet, through local configuration rather considerable differences are effected; thus, Bevers, which is about 200 feet less elevated above the sea than St. Moritz, is colder than this place, and is exposed to greater extremes, owing, in a great measure, to its position near the mouth of a long side valley, the Val Bevers, which leads in a westerly direction to a snow-covered mountain chain, whence cold winds often sweep down upon Bevers. Maria, on the other side, which is almost the highest village in the Upper Engadine, is sheltered by a mountain chain against the predominant winds, and enjoys through this a comparatively mild climate with a luxurious Alpine vegetation; its situation is perhaps the finest in the whole Engadine; on the one side the lake of Sils, and the other the beautiful valley of the Fex Glacier, and within a moderate distance the magnificent mountains of the Engadine, and of the Maloja and the Bernina chain.

The accommodation for visitors is, as yet, limited; but a large hotel, I am informed, is projected, which, if finished, will offer excellent quarters for some invalids, and particularly so for those who, being hereditarily predisposed to consumption, require the bracing influence of the Alpine air, coupled with graduated climbing exercise, to strengthen their digestive organs, and their whole constitution, and especially their systems of circulation and respiration.

Consumption, as I have already stated in a previous part of this paper, does not occur, according to Dr. Brügger's testimony,

amongst those inhabitants of the Upper Engadine, who have not left their country; and, if originating in the natives of this region during their stay in foreign countries, it is cured by their return to the Engadine, provided this is effected in the very first stage of the disease, while the course of advanced phthisis is generally accelerated by a prolonged residence in the Upper Inn valley.

I can, however, not allow this recommendation of Maria, and the Upper Engadine in general, to stand, without adding a few words of caution. Nothing could be more unwise for an invalid, or a delicate person predisposed to consumption, than to think that it would be sufficient for him to spend a few months, or even a few Summers, in the Engadine, and there to climb the mountains, and roam about according to his inclination, perhaps in company with some robust young gentleman accustomed to mountaineering, in order to recover his health completely, or to eradicate the morbid tendency. Not so. "Much judgment" (says an excellent authority on the sanative influence of climate, in a private communication to the author, containing many valuable suggestions), "on the part of the physician, is necessary for laying down rules for the degree and amount of exercise adapted to each individual case. These directions must be founded on the structure and formation of the individual, and especially on the form of the chest and the power of the heart. Then, very much will depend on the judgment and care of the delicate person and his friends. Scarcely any two such patients are capable of taking the same amount of exercise with advantage, and yet they are often associated with strong, healthy companions, and so led to do too much, and lose the advantage they might have gained by their tour, and not unfrequently lose ground." The truth of these remarks cannot be too seriously considered by the medical man, the invalid, and his friends. In addition to the bracing influence of the pure mountain air, the most powerful agent in the stay on the Alps is the exercise; but this exercise, in order to be beneficial, ought to be carefully graduated, while generally it is overdone. The patient ought never to feel fatigued; he ought to extend the amount of exercise, and especially of climbing, only with great care, and ought to avoid great tours. The meals ought to be plain and nourishing, the pure milk of the Alps being, for those who bear it well, an excellent article of food.

The question of the influence of the Alpine climate—*i. e.*, localities in Switzerland elevated beyond 5,000 feet above the level of the sea—on the tendency to consumption, and on the very first

stage of this disease, is one of such vast importance that I cannot help asking for the co-operation of the whole medical profession in its further examination and decision. It would be much to the advantage of the invalid,[a] and of the medical man sending him to the Alps, if there were establishments in healthy situations, under the superintendence of medical men especially interested in the pathology and treatment of tuberculosis and those morbid conditions preceding and preparing the outbreak of consumption In such institutions the most important knowledge might be collected on the relative influence of the mountain air, the exercise, and other hygienic and dietetic agents. There the changes effected in the frequency and depth of the respiratory movements, in the capacity of the lungs (spirometer), in the frequency and force of the pulse, and the contractions of the heart, in the digestive functions, in the tissue change (urine; carbonic acid, and water exhaled), in the action of the skin, in the nutrition of the body (weight), and the general health, might be carefully ascertained, and the age and individual peculiarities of every single invalid might receive due attention. The invalid himself, on the other side, would be guided in the amount and quality of his exercise, and in his whole manner of living. Such an establishment, however, does, to my knowledge, not exist on the Alps. The medical adviser sending a patient to the Swiss Alps must, therefore, give him and his friends detailed instructions as to the locality to be selected, to the diet, and the amount of exercise. He ought, further, in order to assist in the settlement of the question regarding the usefulness of the true Alpine climate, to take exact notes of the individual nature of each invalid, as to age, condition of lungs and heart, constitution in general, degree of hereditary disposition, &c., he ought carefully to ascertain the invalid's condition after each stay on the mountains, and watch, if possible, the after effects. It would be out of place for me to venture to treat here, in an exhaustive manner, the question of the hygienic management, on the mountains, of the invalid predisposed to diseases of the chest, or the method in which the medical man is to decide the therapeutic value of the true Alpine or sub-Alpine climates; but every physician must feel that these are points of the very first importance, and that they deserve a more careful

[a] I use the word "invalid" in a wider sense of the word, including not only persons already affected with a definite disease, but also those affected with a morbid predisposition hereditary or acquired.

consideration, on the part of our profession, than they have hitherto received.

It is only, I repeat, by the unprejudiced co-operation of many observers that we can learn which, in every single case, is the value of one of the various plans which may be proposed for the prevention or cure of the first stages of consumption—as sea-voyages; residence in one of those regions in England and abroad, where consumption is by no means absent among the inhabitants, but where strangers, affected with the earlier stages of the disease, have often obtained relief, and even actual cure; or residence in one of those regions where consumption is reported to be unknown, or of extremely rare occurrence amongst the inhabitants, as in those peculiar sandy plains of the government of Orenburg, in Russia, with their "excessive" climate, their dry air, their violent gusts of wind, and their great barometric pressure, which few, probably, would like to select; or in the Feroe Islands and Iceland, with their mild island climates high up in the Northern Ocean; or in some of the Alpine or other mountainous habitations of Europe, America, or Asia, with their frequent and rapid changes of temperature, and their low barometric pressure; or in other regions in which the absence of tubercular phthisis may still be discovered.

We must guard ourselves, in examining these important and difficult questions, against arriving too quickly at certain inferences. We must further remind ourselves, and the invalids advised by us, that a single season, in the most eligible locality and under the most conducive hygienic influences, is in general insufficient to produce permanent benefit; for truly says Sir James Clark, on the subject of travelling and climate in the treatment of consumption:—"These measures must be pursued for a long period; a residence for a few months only in the finest climate, or travelling under the most favourable circumstances, cannot be expected to do much in correcting a constitutional disorder which may have existed from birth."[a] It is, besides, essential that the invalids, the majority of whom will probably not spend more than three months in the year on the mountains, maintain their health during the remaining nine months; and in this respect I would again refer to the author just mentioned, who, in his chapter on the "Prevention of Tuberculous Disease in General, and of Consumption in Particular,"[b] gives

[a] A Treatise on Pulmonary Consumption. By James Clark, M.D., &c. London, 1835. pp. 332.

[b] L. c., pp. 268 to 305.

excellent advice with regard as well to the management of the general health as also to the exercise of the upper part of the body and the expansion of the lungs.

The *Lower Engadine*, which extends from the Ponte Alto (Puntola, Puntaut), a bridge between Scanfs and Zernetz, or, more accurately, between Cinuschel and Brail, to Martinsbrück, near Nauders, in the Tyrol, is, in the greater part of its extent, much narrower than the Upper Engadine, and has in its scenery more the character of the Tyrolese valleys. The climate is milder, not only from its lower elevation, but also from being more sheltered from the winds descending from the region of the Maloja. The tourist coming down from the Upper Engadine perceives this diminished movement in the air very distinctly, and feels, through this, on warm days, much more oppressed. I am, however, unacquainted with accurate meteorological researches relating to the Lower Engadine, except some notes, published by Meyer-Ahrens, in his work on the spas of Switzerland, according to which, at Vulpera, in July, 1858, the average temperature, at 6 a.m., was 10° cent. (50° F.); at 2 p.m., 17·5° cent. (63·5° F.); and at 9 p.m., 12·5° cent. (54·5° F.); the mean temperature being given as rather less than 14° cent. (about 57° F.) We may hope that accurate observations on this subject will, before long, be published, especially as regards the neighbourhood of *Tarasp and Schuls*, which places are fast gaining an European reputation as spas and health resorts. These villages are situated very near to each other, in the widest part of the valley, the former at the right, the latter on the left, bank of the Inn, at an elevation of about 4,000 feet above the level of the sea. More than twenty mineral springs of varying composition have been discovered in this neighbourhood, in a circumference of scarcely more than two English miles. Most of them have been analysed by several chemists,[a] and of late, in a very careful manner, by Dr. A. von Planta-Reichenau,[b] according to whom they may be classified into: A, cold acidulated alkaline saline sources; B, acidulated chalybeate sources; C, sulphuretted springs; D, mofettes, or gaseous emanations. To the first class, viz., the *acidulated alkaline saline* springs

[a] The older analysis, by Capeller and Kaiser deserves especially to be mentioned, and the late Dr. Kaiser, of Coire, has also otherwise much contributed to the reputation of Tarasp.

[b] Chemische Untersuchung der Heilquellen zu Schuls and Tarasp. Von Dr. A. von Planta-Reichenau. Chur, 1859.

Tarasp owes its reputation. The following table exhibits the constituents of the three principal springs, which all three appear to originate from the same source, differing only by the admixture of water:—

A pound of water (7,680 grains) contains	I. The great spring at Tarasp ("Grosse Quelle")	II. The small spring at Tarasp ("Kleine Quelle")	III. The saline spring of Schuls ("Schulser Salzwasser")
	Grains	Grains	Grains
Carbonate of lime,	12·4323	12·4016	10·8702
Carbonate of magnesia,	5·0764	4·9766	4·3415
Carbonate of iron,	0·1520	0·1397	0·1036
Carbonate of soda,	27·2294	28·5350	22·6222
Chloride of sodium,	29·4013	29·3813	22·1752
Iodide of sodium,	1·5360	Traces	Traces
Sulphate of soda,	16·5473	16·4167	11·9769
Sulphate of potash,	2·9975	3·3369	2·1719
Silica,	0·2465	0·0921	0·1843
Phosphoric acid,	0·0023	} Traces	} Traces
Alumnia,	0·0015		
Fluorine, manganese,	Traces		
	95·6225	95·2799	74·4458
Carbonic acid, free and half free,	34·8871	33·2712	29·5318
Carbonic acid, really free,	15·3984	13·3009	13·1627
The gases ascending from the spring consist of:			
Carbonic acid,	993·44	992·13	
Nitrogen,	4·27	5·33	
Oxygen,	2·29	2·54	
	1000·00	1000·00	
	At 14° Cent. (57·2° F.)	At 14° Cent. (57·2° F.)	At 13° Cent. (55·4° F.
Specific gravity,	1013·0	1012·9	1010·4
Temperature,	6·2° cent. (33·16° F.)	6·2° cent. (43·16° F.)	8·1° cent. (46·6° F.)

The water of these springs is transparent, and, when taken at the springs themselves, is slightly pungent and refreshing, and has no disagreeable taste, owing to the large amount of carbonic acid contained in it; while, after having been left standing for some time in an open vessel, it has a bitter, saline, and slightly soapy taste. The composition of these waters is most valuable, and it differs from that of all other mineral waters. Amongst the spas of an established reputation that of Marienbad, in Bohemia, presents, in the Ferdinandsbrunnen and Kreuzbrunnen many points of resemblance; but these springs contain a much larger proportion of sulphate of soda and a smaller one of carbonate of soda, and also of chloride of sodium. The waters of Tarasp are, I am inclined to infer, rather less weakening and more exciting on the circulation and the tissue change than those of Marienbad. They offer an excellent remedy in cases of disturbed abdominal circulation, the condition usually designated as abdominal plethora, with all its manifold consecutive symptoms, as dyspepsia from catarrh of the stomach and intestines, irregularity of motions, flatulency, swelling of the liver (congestion and hypertrophy), increased corpulency, &c.; and the elevated situation, with its rarified air, and the grand scenery, with its temptation to increased exercise, are important auxiliaries, tending to remove the original causes of the sluggishness of the abdominal circulation. It need scarcely be said that these waters ought not to be used in the advanced organic diseases of the liver and intestines, as ulceration, cancer, atrophy, and cirrhosis, with their consecutive conditions.

B. Of the group of the *acidulated chalybeate sources*, the three most important are at present the Wyhquelle, the Suot Sasquelle, and the Tarasper Sauerquelle, at Val Zuort—the two first being on the left, the third on the right bank of the river Inn. The composition, fonnd by Dr. von Planta, is the following:—

A pound=7,680 grains, contains	I. Tarasper Sauerquelle, at Val Zuort	II. Wyhquelle	III. Suot-Sasquelle
	Grains	Grains	Grains
Carbonate of lime, - -	14·6096	9·4671	7·9703
Carbonate of magnesia, -	2·5850	0·6481	0·5998
Carbonate of iron (protoxide, - - - -	0·2534	0·2035	0·0975
Carbonate of manganese (protoxide), - - -	—	0·0130	—
Carbonate of soda, - -	7·9296	0·0284	—
Chloride of sodium, - -	0·4377	0·0161	0·0069
Sulphate of soda, - -	1·6488	0·0867	0·1528
Sulphate of potash, - -	0·7334	0·0837	0·0875
Sulphate of lime, - -	—	—	0·1443
Silica, - - - - -	0·1420	0·1474	0·1136
Phosphoric acid, - -	—	0·0015	—
Alumina, - - -	—	0·0007	—
	28·3395	10·6962	9·1727
Temperature, - - -	7·5° cent. (45·5° F.)	8·7° cent. (47·66° F.)	9·3° cent. (48·74° F.)
	At 13° Cent. (55·4° F.)	At 14° Cent. (57·2° F.)	At 13° Cent. (55·4° F.)
Specific gravity - -	1002·9	1002·0	1001·9
	Grains	Grains	Grains
Free and half free carbonic acid, - - - -	28·5810	21·8787	22·1498
Quite free carbonic acid, -	17·4120	18·0211	17·5526

The chalybeate source of Tarasp (I. in the table), which is evidently, for most purposes, by far the most valuable, is as yet in a primitive condition; but it is to be hoped that it will soon be placed under a proper roof, and that the conduction of the water from the subterranean origin to its place of utilization will be improved, so as to prevent the admixture of common water. The presence of these chalybeates is very important for the spa of Tarasp, or rather Schuls-Tarasp, as the one or other of them may be used, in some cases, at the same time with one of the saline springs, in order to alter the effect of the latter; or may be used as a tonic after the completion of the course of the saline water; or, quite independently of the

saline springs, as a mild chalybeate, for which purpose the "Tarasper Sauerquelle at Val Zuort" offers the peculiar advantage of being at the same time perceptibly alkaline. In comparing the spas Schul-Tarasp and St. Moritz, the former ought to be recommended in such cases where, in addition to the tonic influence of the chalybeate, the alterative and depletory action of the saline waters may be desirable. The rather milder climate, and slighter elevation above the level of the sea, of Tarasp ought likewise to be taken into consideration in many instances.

C. The *sulphuretted spring*, which issues about a mile from Tarasp, in the Valatscha Tobel, is, as yet, of little importance. It contains, besides a small amount of *sulphuretted hydrogen* (0·0184 grain in the pound), the sulphates of soda and potash, the chlorides of sodium, magnesium, and calcium, the carbonates of lime, and of the protoxide of iron, and silica, amounting, in all, to 2·33 grains of solids in the pound.

D. The *mofettes* consist of emanations of gas from fissures in the ground, and are very interesting phenomena, existing, generally, only in volcanic regions, as in the south of Italy. The larger one, situated near the road to Fettan, is easily found by the sterile condition of the ground in its neighbourhood, which is covered by dead insects, perished from having come into the reach of the exhalations. The recent analysis of Bunsen has shown that the gas consists almost entirely of carbonic acid (99·1 per cent.), with a small amount of nitrogen (0·9 per cent.), and only traces of sulphuretted hydrogen. These gaseous exhalations may be used for gas-baths, but hitherto they have not yet been much employed.

This short acoount of the wealth of the district of Schuls-Tarasp in mineral waters shows that the spa ought to rank amongst the first in Europe. Hitherto, however, the accommodation was so limited and defective[a] that people of fastidious habits could not be recommended to go there. This defect is now being removed, as a company of shareholders has farmed the various sources of Schuls and Tarasp, and has erected a large "Kurhaus" in the estate of *Nairs*, which will probably be opened for the reception of visitors in the course of this Summer. The "Kurhaus" will contain nearly 200 bed and sitting-rooms, including some large saloons, and, in

[a] The visitors have hitherto resided partly at Vulpera, where there are several inns, and where, also, the medical man of the district lets part of his house, and partly at Schuls, which is more than a mile distant from the principal springs, thus necessitating a long walk to and from them on a shadeless road.

addition, 60 bathing-rooms, to which the waters from the various sources will be conducted. The situation of the "Kurhaus" is, however, I am afraid, not quite as good as it might be wished, being on the left bank of the Inn, close to the river, in the lowest part of the neighbourhood, with a steep hill to the north, being exposed to the rays of the midsummer sun, from about seven or eight in the morning until about five in the afternoon, with but very little shade in its immediate neighbourhood. It would appear to me much more advisable to place a "Kurhaus" on the heights of Vulpera, where there is a free circulation of air, where fine shady walks are in close proximity, and where a glorious Alpine scenery is open on all sides, while little of it can be seen from the "Kurhaus" at Nairs. The walk from Vulpera to the principal sources is, for most invalids affected with abdominal plethora, not objectionable, while those unable to walk to the springs and the baths might either be carried in chairs or by donkeys. There might be, also, a limited number of bed and sitting-rooms near the bathing establishment for patients of this class.

Large as the new "Kurhaus" is it will probably, before long, be too small for the numbers of visitors in search of health at Tarasp; and then, we trust, the managers of the company to whom, otherwise, much praise is due, will not forget the beautiful situation of Vulpera. It would also be a great boon if the number of shady walks were to be increased.

Dr. von Moos, the physician of the place, who resides at Vulpera ought always to be consulted before any of the waters of Schuls-Tarasp are used.

The best approach to the spa for invalids is, as yet, from the Upper Engadine; but soon the road to Nanders will be finished for carriages, and will then be the most eligible way for those coming from the east, north-east, and south-east.

After having devoted so much space to the Engadine, we will but briefly direct the attention to a few other places in the Grisons, which may occasionally be resorted to with great advantage.

In the beautiful valley of the Poschiavino, close to the lake of Poschiavo, are the spa and "Kurhaus" of *le Prese*, between the small town of Poschiavo and the village of Brusio, on the road from the Engadine and the Bernina to Tirano, in the Italian Valteline. The mineral spring is a weak sulphuretted water, of a temperature of about 46·5° Fahr., containing in solution a small proportion

of gypsum; it is employed as well internally as also in baths, for which latter purpose it is heated by steam. The bathing establishment is furnished with eighteen marble baths, and with apparatus for douches and vapour baths, and is able to receive about eighty visitors. The management of the establishment is spoken of as perfectly satisfactory

The climate of le Prese is, considering its elevation above the sea being about 3,000 feet, very mild, owing to its being sheltered from the north winds; and the neighbourhood of the lake of Poschiavo is said to cause, on a hot Summer day, a considerable diminution of the heat, which I am informed, at le Prese, never exceeds 77° Fahr., while at Poschiavo, three miles higher up in the valley, the thermometer occasionally reaches (in the shade) 86° Fahr. The lake is rich in trout, and the surrounding scenery is very grand, but there seems to be here, as in so many other health resorts of Switzerland, rather a want of shady walks, which, considering the heat of the almost Italian sun, increased by the reflection from the mountain sides, is a great defect for many invalids, while those who like to bask in the mid-day sun may find this place very agreeable. The season is, as for almost all the Alpine and sub-Alpine spas, from the middle of June to the middle of September.

On the southern slope of the Bernardino, on the road from Coire to Bellinzona, we find the chalybeate spa and village of *St. Bernardino*, at the top of the valley of Misocco (Misoxerthal), more than 5,000 feet above the level of the sea, and rather less than 2,000 below the summit of the St. Bernardino Pass. The temperature of the water is about 48° Fahr.; it is transparent, rich in carbonic acid, and contains, according to Capeller's analysis, in the pound, about eleven grains of sulphate of lime, five grains of carbonate of soda, four grains of carbonate of lime, and almost $\frac{2}{10}$ grain of the carbonate of the protoxide of iron, besides some other substances in small proportions. The quantity of the water though sufficient for internal use is not sufficient for bathing purposes. There are several good hotels in the immediate neighbourhood of the spa. The climate is described as highly bracing, the mornings and evenings being in general rather cold; the air is remarkably transparent, but I have not been able to obtain more accurate meteorological accounts. The scenery is very fine—the green of the Alpine pastures, enlivened by the wild little stream, peculiarly refreshing; and there are some charming shady walks amongst the larch trees, and round a small lake at no

great distance from the hotels; there is also ample scope for more extensive excursions in the neighbourhood.

St. Bernardino can be reached either from the north, by the excellent carriage road from Coire, through the Via Mala and Splügen, to Italy, or from the south, by the same road from Italy (Bellinzona), to the north.

The valley of the *Prättigan* (Pratigovia Wiesengau, Val Pratenz), rich in green pastures, ruined castles, and old legends, contains two spas of great local reputation, *Fideris* and *Serneus*, the former being an acidulated alkaline chalybeate, about 3,300 feet above the level of the sea; the latter a sulphuretted water, similar in composition to the sulphuretted water near Tarasp, its elevation being rather more than 3,000 feet. The accommodation in both places can scarcely be compared with that of St. Moritz, or any of the German or better French spas; although it is well spoken of by the Swiss themselves, by whom the inns and bathing establishments are crowded during the season. The situation of Fideris and Sernens offers many advantages, which some day may be turned to account also for visitors accustomed to some amount of comfort.

Not far from the Prättigan is the *Davos*, a truly pastoral valley, elevated between 4,500 and 5,000 feet, and about ten miles long. It has been recommended as a climatic health resort, especially against complaints of a scofulous nature, by Dr. Ruedi, who affirms that scrofula is unknown in the valley amongst those who have never left it, and is rapidly cured by the mere influence of climate in those who, having acquired it abroad, return to their mountain homes, a recommendation which is ably seconded by the learned author of the *Heilquellen and Kurorte der Schweiz.*[a] The valley of Davos extends from north-east to south-west, between high mountain chains, being exposed only to the south and north winds, the latter of which is occasionally attended with very sudden and great falls of temperature. The air is regarded as remarkably bracing, and as causing a great increase of the appetite. The inhabitants, particularly the men, give the impression of robust health. There are three villages in the valley which all possess the name "Davos," being distinguished as "Davos Dörfli," "Davos am Platz," and Davos Frauenkirch;" and in addition the village of "Glaris" and that of "Monstein," in a side valley. "Davos am Platz" is the

[a] Meyer-Ahrens, l.c., p. 702.

principal place of the valley, and offers the best accommodation,[a] which, however, is limited as to space, and is, perhaps, not quite equal in comfort to that of first-class hotels, but yet satisfactory for modest demands, especially as the appetite and sleep of visitors are generally much improved by a stay in such Alpine valleys. The valley is traversed by the "Davoser Landwasser;" it possesses a small lake, is rich in the freshest pastures, and has also the advantage of fine forests of the larch and the arolla. Although there are high mountain ranges to the north-east and south-west, yet the valley is wide enough to allow the entrance of the sun during a great part of the day, and to prevent the feeling of oppression often perceived in the narrower valleys.

The "Davos" can be reached by carriage through the Prättigan, the station Landquart, on the railway between Coire and the lake of Constance, being the place where the traveller leaves the Rhine valley, and can either avail himself of the diligence or of private conveyance. The Scaletta and Fluela Pass lead from the "Davos" into the Engadine.

Many more health resorts and spas might be mentioned in the Grisons, but as yet the accommodation is not sufficient to render a prolonged stay desirable for the invalid.

The *Canton of St. Gall*, which stretches from the lake of Constance to that of Zurich, and towards the south and south-east to the Canton of the Grisons, includes some high mountains covered with perpetual snow (Ringelkopf, Scheibe), but it possesses few habitations which as yet might serve as Alpine health resorts. There are, it is true, several villages and towns frequently resorted to by invalids in search of health, as Rorschach and Romanshom, near the lake of Constance, and Wallenstadt, near the beautiful lake of that name; but they scarcely partake of the character of the mountainous climate. More advantage, in this respect, is offered by some places in the neighbourhood of the town of St. Gall, as Tivoli, between St. Gall and Trogen, Freudenberg and Fröhlichsegg, with a splendid view on the mountains, and on the green hills and valleys of St. Gall and Appenzell; as also by Rosengarten, with an establishment for the whey cure, in a fine and healthy situation in the district of the Toggenbrug, about 2,000 feet above the level of the sea; and the hydropathic establishments of Buchenthal and Auf

[a] The "Hotel Strehla" has about twenty rooms, and the "Rathhaus" probably a smaller number.

der Waid; but the only places of more than local reputation are *Pfaeffers* and *Ragatz*, which may be considered together, as they owe their importance to the same springs, which issue from the rocks close to Pfaeffers in the gorge of the Tamina, and part of which is conducted, by means of wooden pipes, to Ragatz in the Rhine valley, at the mouth of the gorge of the Tamina. The distance from Pfaeffers to Ragatz is about two and a-half miles; both places are, at present, connected by an excellent carriage road, one of the most interesting in Europe, running in a narrow ravine along the furious torrent of the Tamina with almost perpendicular rocks, more than 600 feet high on both sides.

Bad-Pfaeffers (or Pfeffers, or Pfaefers) has been known already in the middle ages, and has been then already much resorted to, although the whole accommodation consisted in one or two wooden huts, erected close to the origin of the spring, in almost the narrowest part of the gorge of Tamina, to which the rays of the sun had no access, and which the invalid could reach only by means of ropes, by which he was let down from above through the chasm.

The springs of Pfaeffers belong to the class of *indifferent thermal waters*, containing in 16 ounces, according to Löwig, (1841):—

Carbonate of lime,	1·081 grains.
Carbonate of magnesia,	0·224 ,,
Sulphate of lime,	0·056 ,,
Sulphate of magnesia,	0·151 ,,
Sulphate of soda,	0·070 ,,
Chloride of sodium,	0·395 ,,
Chloride of potassium,	0·023 ,,
Iodide of sodium,	0·001 ,,
Alumina,	0·008 ,,
Oxide of iron,	0·006 ,,
Silica,	0·119 ,,
Organic matter,	0·084 ,,
	2·218 grains.

The gases, analyzed by Pagenstecher, are (in 16 ounces of water)—

Carbonic acid,	4·150 cubic inches.
Nitrogen,	3·700 ,, ,,
Oxygen,	1·300 ,, ,,

The temperature of the water at the source is 37·3° to 37·8° cent. (99·14° to 100·04° Fahr.); in the drinking hall of Bad-Pfaeffers, about 1,500 feet distant, 36·87° cent. (98·4° Fahr.); and at Ragatz, 12,506 feet distant, about 34° to 35° cent. (93·2° to 95° Fahr.); but it may be, in exceptional Summers, as low as 33·7° cent. (92·66° Fahr.), namely, if the quantity of water is small and the flow sluggish.

The Kurhaus of Bad-Pfaeffers, resembling an old monastery, has more than 130 rooms, and can admit 250, or even 300, visitors; it has twenty-six single baths, some being wooden, the walls of the majority being inlaid with china tiles; and, in addition, several larger baths for eight or ten persons (piscines), mostly used by the poor, with separation of the sexes. Douche apparatuses are likewise in several of the baths.

The situation of Bad-Pfaeffers although most attractive to the tourist, is rather too gloomy for a prolonged stay; the rays of the sun, owing to the narrowness of the ravine and the height of the perpendicular rocks, being admitted only during four or five hours in the day; the house and neighbourhood give the impression of dampness; the noise of the roaring Tamina is an additional annoyance to some nervous invalids, though the majority become more accustomed to it; and lastly, the limited ground for exercise is a very serious disadvantage. The climate of Bad-Pfaeffers, elevated rather more than 2,000 feet above the level of the sea, has, however, also some advantages over that of its neighbourhood in being more agreeable; the cold winds having but slight access, their effects are less felt, and the high rocks, as well as the cold mountain stream, cause the temperature of the ravine on hot summer days to be always several degrees lower than that of the adjacent Rhine valley.

The Kurhaus at *Ragatz*, called Hof-Ragatz, is a comfortable "Pension" and inn, accommodating more than 100 visitors. It contains twenty-five single baths, some of which are provided with douches.

The situation of Ragatz, although it is more than 500 feet lower, and possesses, therefore, less of the mountain climate, is more favourable to the majority of invalids than that of Bad-Pfaeffers; the broad valley of the Rhine, in which it lies, is infinitely more cheerful than the narrow gorge of the Tamina; and the view of the mountains of the Grisons and the Vorarlberg is very grand,

the opportunity for exercise being, at the same time, almost unlimited.

The Pfaeffers water is used at both places, as well in baths, of a quarter to one hour's duration, as also internally in the quantity of from two to eight, or even ten, small tumblers, taken early in the morning before breakfast, with an interval of ten to fifteen minutes between each dose.

The *physiological* effect of this large quantity of warm water introduced into the system is, of course, increased diuresis and diaphoresis; and in connexion with it, it may be assumed, increased tissue change; some of those who have used it, describe it as having a remarkably soothing influence on the stomach, especially in cases of increased irritability of that organ. The same soothing influence appears to be exercised by the baths on the whole nervous system.

The *therapeutical* actions ascribed to Pfaeffers are manifold; but it would require too much space thoroughly to discuss the foundation of these claims. The curative effects, whatever they are, may be considered as dependent upon the physiological influences just mentioned.

As far as I can gather from the conversation with medical men and invalids, and from my own experience on the latter, dyspepsia, with irritation of the mucous membrane of the stomach and intestines, is one of the conditions most benefited at Ragatz; and a host of morbid conditions connected with this; hysterical affections of various forms, including hysterical paralysis, muscular rheumatism, and the rheumatic conditions remaining after an attack of rheumatic fever, or also after other febrile diseases. The more inveterated forms of rheumatism and rheumatic gout, the organic alterations of the joints yield, if at all, less perfectly and very slowly. I do not mean to state by this short enumeration that there are not many other forms of disease, which may be, and constantly are, very favourably influenced by the cure at Ragatz and Pfaeffers, but it appears to me that some of these forms would gain still more in places where the caloric element acts more intensely, or where the "hydro-therapia calida" is more developed; others where this element is combined with sulphur, as at Aix-les-Bains and in the Pyrenees. A great advantage possessed by Pfaeffers and Ragatz is the presence of physicians of superior education and experience, appointed by the Government of St. Gall, who ought to

be consulted by every invalid intending to use these waters. At Ragatz resides Dr. Kaiser, at Bad-Pfaeffers Dr. Dormann.[a]

Ragatz is easily accessible from the north, by the railway extending from the Lake of Constance to Coire; from the west, by the railway from Zurich to Coire; and from the south by the mountain passes over the Splügen and Iulier.

The canton of *Appenzell*, which is surrounded by that of St. Gall, is, although rich in the beauties of nature, and above all, in green hill sides, studded to their very top with cheerful-looking houses, comparatively less frequented by tourists than by health-seekers, who go there chiefly on account of the *whey cure* ("molken-cur;" "Cure de petit lait,") which was first systematically used in this Canton, and especially in the village of Gais. As the whey-cure is not much known in England, I will give a short account of it from observation and information collected at Appenzell, Meran, Badenweiler, and Ischl. I ought to state, however, that Dr. Sieveking has already, in a very able and suggestive manner, directed the attention of the profession to this subject in his review of Beneke's pamphlet on the whey-cure at Bad-Behburg,[b] to which I beg to refer for more scientific information.

Whey has been used as a dietetic medicine already by Hippocrates and his successors; but the first whey-cure establishment, as far as I could learn, was founded only in 1749, at Gais; many others have since arisen in various places of Switzerland and Germany; and in most of the larger German watering places whey is systematically employed either by itself or in combination with other mineral waters.

Whey may be prepared from the milk of cows or goats, ewes, and asses; and the separation of the whey from the cheese may be effected by rennet, or by bitartrate of potash, or tamarinds, or alum, or various acids and acid wines and fruit juices. The milk usually employed is that of the cow and goat, and rennet is most

[a] Amongst the treatises which have appeared on Pfaeffers and Ragatz the following deserve especially to be mentioned:—Die Heilquelle, von Pfaeffers and Hof-Ragatz, von Dr. J. A. Kaiser. St. Gall, 1843. Der Kurort Hof-Ragatz in der Schweiz, von Dr. P. W. Vogt. Giessen, 1857. Die Krankheiten des Nerveu-systems an der Thermal-quelle zu Pfaeffers, von Dr. J. F. Kaiser, 1853. Meyer-Ahrens, too, gives an ample account of these spas in his work on the Heilquellen and Kurorte der Schweitz. L. c., p. 491.

[b] Die Rationalitál du molkencuren, &c. By Dr. F. W. Beneke. Hanover, 1853. Brit. and For. Med.-Chir. Review, 1853, Vol. xii., p. 149.

generally used as the means of coagulation. The manner of preparation, which is not exactly the same in different places, and naturally exhibits variations, depending on the skill and habits of the whey cook, is in Appenzell, according to the information kindly furnished to me by Dr. Hersche, of Appenzell, and a whey cook (a "Senne,") of the village of Schwendi, where the whey for the canton of Appenzell is prepared, about the following:—

The fresh goat's milk is warmed, in a large caldron hanging over an open fire, to a temperature varying between 95° and 105° Fahr.; then a part of this warmed milk is removed, while to the other part remaining over the fire a certain quantity of rennet (from the kid) is added. The temperature and the quantity of rennet are of the greatest importance for the quality of the whey; there seem to be, however, no fixed rules on the subject, but the cook (a "Senne,") is guided by his own taste and experience. If the quantity of rennet is too large, the taste of the whey is disagreeable, and all the earthy phosphates are precipitated; if it is too small, the separation of the caseine is not perfect. The milk is, after the addition of the rennet, further heated to a temperature of about 120° to 130° Fahr., and the cheese removed by agitation with a piece of wood or a small branch, after which the part of the milk previously put aside is added to the other fluid, and the whole again heated. To this whitish fluid some acid whey ("Molkenessig," "Sur,") is admixed, by which the remainder of the caseine (called "Zieger,") swimming on the top of the whey, is separated; the fluid is now filtered through a thin cloth made for the purpose.

The whey thus obtained, called by the Swiss, "schotten," is immediately distributed in a kind of wooden tubs, with a firmly closing lid, which tubs are carried by the whey porters, on their shoulders, to the different establishments (Weissbad, Appenzell, Gais, Heiden, Gonten, Heinrichsbad), where the whey arrives early in the morning (the preparation taking place in the first hours after midnight), and is still quite warm when drunk, between 6 and 8 a.m. This whey, which I tasted at Weissbad, at Gais, and at Heiden, is transparent, or almost transparent (any degree of opacity depending on an imperfect separation of the caseine), of a pale greenish colour, sweetish taste, and aromatic flavour, by no means disagreeable to the majority of people. The temperature of the whey varied at different establishments between 95° and 102° Fahr. (35° and 39° cent.); the reaction was neutral, or nearly neutral, and the specific gravity between 1033 and 1035.

I am not acquainted with an accurate chemical analysis of the whey of Appenzell; and the composition would, probably, exhibit, at different times, slight variations, according to the differences in the manner of preparation; and still more, perhaps, according to the difference in the goat's milk used, which must necessarily vary with the quality of food, depending, to some degree, on the period of the season, on the amount of rain and sunshine, and on other circumstances.[a]

The composition may, however, be easily calculated in an approximative manner, as we know that the whey is milk without its cheese, or, more accurately speaking, without its caseine, its fat, and part of its earthy phosphates;[b] it consists, therefore, of by far the greater part of the water, the sugar of milk, some extractive matter, and the saline substances, with the exception of part of the earthy phosphates, the bases remaining in the whey being principally potash and soda, in combination with hydrochloric and phosphoric acids, and, probably a very small quantity of iron. It would be valuable to know the exact quantity and quality of the salts, as they are, we believe with Beneke, of greater importance in the physiological action of the whey than is generally thought; but, as far as I know, even the salts of the milk have, as yet, not attracted sufficient attention. We may mention, however, that the average quantity of salts contained in 1,000 parts of goat's milk amounts, according to Chevalier and Henry, to 5·8 parts.[c] With much more certainty we can speak of the sugar of milk, which, according to the chemists already mentioned, amounts (together with the very small proportion of extractive matter) to 52·8 parts in 1,000; we may, therefore, calculate that six ounces of goat's whey, which correspond to ten ounces of milk, contain about half-an ounce of sugar of milk; and that an invalid taking every morning a

[a] The variation of the milk of animals under the influence of the quality and quantity of food, the time of the day, the season, and various other circumstances, is a subject of great interest; but, although some valuable researches bearing on it have been made, there still remains much to be investigated.

[b] According to Frerichs a much larger amount of phosphates is separated from the whey by the preparation of the cheese, and whey through rennet, than by that through spontaneous coagulation (formation of lactic acid). The cheese contains, in the former case, 6·5 per cent. of salts, of which six consist of phosphate of lime, while in the latter it contains only a small amount of lime, and no other bases but some free phosphoric acid.—(Wagner's Handwörterbuch der Physiologie. Vol. iii. Article, "Verdauung," p. 701. 1846.

[c] Scherer. Article, "Milch," in Wagner Handwörterbuch der Physiologie. Vol. ii. p. 466. 1844.

pint and a half of whey, takes two and a half ounces of milk sugar; and by taking three pints of whey, five ounces of sugar.

The most palpable physiological effects of the ingestion of so large an amount of water with sugar are diuretic, diaphoretic, and, in most cases, slightly laxative; the tissue change is, through this, increased, as the augmented secretions carry off with themselves a larger amount of solids. Whey may also be called nutritive, as it is reasonable to suppose that part of the sugar, and of the saline substances of the whey, enter the blood, and there act as aliments.

The use of whey is, according to Beneke, desirable in those morbid conditions in which the quantity of nitrogenous matter in the blood is increased, and the proportion of the non-nitrogenous, and especially the inorganic constituents, defective; in which, therefore, we ought to diminish the proportion of the albuminous substances of the blood, and increase that of the non-nitrogenous, and especially of the inorganic constituents.[a]

I am prevented here from entering into a discussion on the harmony between the scientific reasoning on the effect of whey, and the practical experience gained at the whey-cure establishments; but if the panegyrics written on the latter are well sifted, it will be found that some facts remain which are in accordance with the theory.

Amongst the morbid conditions in which the whey cure appears to be most useful, I would place at the head various states of dyspepsia, as cardialgia and sense of fulness after taking food, heartburn, eructation, irregularity of motions, with tendency to constipation, groups of symptoms which are always connected with a deranged secretion of the mucous membrane of the stomach and intestines, with an irritable state of the ganglionic system, with a sluggish circulation of the blood in the abdomen, with tendency to piles and congestion of the liver, and which are frequently comprised by continental writers under the designation "plethora abdominalis."

The second group of diseased states, more or less intimately connected with the preceding, relates to the respiratory organs, and consists of some forms of chronic catarrh of the mucous membrane of the larynx, the trachea, and the bronchi, with or without tendency to phthisis; the first stage of tuberculosis and the pretubercular

[a] Beneke, who regards the earthy phosphates as materially aiding the cell formation, suggests the administration of phosphates simultaneously with the whey (deprived of part of its phosphates), when the latter appear essential.—(L. c. 19)

stage, and moderate degrees of emphysema. Another series of morbid processes which are likewise benefited by the whey cure is usually designated as rheumatic, consisting of muscular and articular pains, without much swelling or organic alteration, based on mal-assimilation of food, and thus related to the first group. The same may be said of various complaints of a scrofulous nature in young people. As a general rule this kind of treatment is not so suitable to muscular persons, or to those of "full habit," as to delicate constitutions. The whey is taken warm, early in the morning, in doses of from five to ten ounces, two, three, four, and even ten times repeated in intervals of between 10 and 15 minutes, some taking only half a pint, others as much as three, four, and five pints per day. Gentle exercise in the open air is generally associated with the drinking of the whey. In some cases other mineral waters, or other medicines, are used simultaneously with the whey. Not rarely, especially if the appetite is defective, the fresh juice of various alpine plants is given in doses of one or two ounces, a plan which I have seen in some instances attended with marked benefit—the herbs principally employed being leontodon taraxacum, menianthes trifoliata, tussilago farfara, nasturtium aquaticum, veronica beccabunga, and radix calami aromatici.

The diet and manner of living ought to be most carefully attended to; but each patient ought to be, in this respect, individually considered; it is impossible to lay down general rules, except that every excess in diet and exercise is to be anxiously avoided.

It is, of course, not to be lost sight of in the appreciation of the effect of the whey cures in the canton of Appenzell, that the different localities lie all between 2,000 and 3,000 feet above the level of the sea, and that all the influences of the mountainous climate, previously considered, are therefore combined with that of the whey.

The oldest and best known of these health resorts is *Gais*, a village of cheerful appearance, about two miles from the small town of Appenzell, and about six from St. Gall, easily accessible by good carriage roads. It lies in an open valley, elevated about 2,900 feet above the level of the sea; it is perfectly sheltered against the north and north-east, and partly, also, against the east winds; towards the south-west, whence the strongest winds come, often accompanied by rain, it is quite open, and, to a great degree, also towards the south, as the high mountains, situated in this direction, are more than five miles distant. The mean temperature of the Summer

months is about 20° cent. (68° Fahr.), the average mid-day temperature, in July and August, varying between 25° and 30° cent. (77° to 86° Fahr.) The mean barometric pressure is 25·5 inches. The climate is generally described as remarkably healthy, when compared with other localities in the neighbourhood. The view from Gais, on the surrounding hills and mountains of Appenzell and St. Gall, is charming; a disadvantage, however, to the invalid is the very limited number of shady trees in the immediate neighbourhood. The whey taken at Gais is prepared, as already stated, at Schwendi, about six miles distant, but it is still quite warm when it reaches Gais, and is apparently unimpaired in its other qualities. Dr. Heim, a physician of great experience, and the author of a well-known work on the whey cure,[a] deserves the confidence of those who have been advised to resort to Gais.

The inns of the "Ochs," the "Krone," and "Lamm" offer satisfactory accommodation, but they are, in general, overcrowded during the season.

After Gais, *Heiden* has the greatest reputation among the health resorts in the canton of Appenzell. It is beautifully situated, partly on a plateau, partly on a mountain slope, near the lake of Constance, over which many of the houses command a splendid view. The elevation above the level of the sea is rather less than 2,500, and that above the lake 1,200 feet. Accurate meteorological accounts are wanting, but the place possesses the reputation of a very healthy and bracing climate, in corroboration of which it may be stated that the celebrated ophthalmologist, Dr. von Graefe, does not only recommend the stay at Heiden to many of his patients, but that he spends there himself the greater portion of his autumnal holidays. The whey taken here is prepared together with that taken at the other establishments of the canton, and the distribution of it to the visitors is superintended by Drs. Küng and Beck. Dr. Benziger, of Altstellen, a former assistant of Dr. von Graefe, pays, likewise, daily visits at Heiden.

Good accommodation can be obtained at the "Freyhof," and, besides, at the "Löwe," and in some private houses; but it ought to be ordered, if possible, some time before the intended visit. I must, however, add that here, too, as in so many health resorts of Switzerland, there is a want of trees, the nearest small wood being about half a mile distant over a shadeless road.

[a] Die Heilkräfte der Alpenziegenmolken und der Molkenkurort Gais. Von I. H. Heim. Zurich, 1844.

A great preference, with regard to shady walks, is possessed by the *Weissbad* (2,530 feet), a boarding house, with whey cure and bathing establishment, two and a-half miles south-east from Appenzell, in a retired and sheltered spot at the foot of the Sentis, offering excellent opportunity for near and distant excursions. The walks in the immediate neighbourhood are not only shady, but also sheltered from winds, and the air is here moister than in the other health resorts of Appenzell, which may be partly due to the conflux of three mountain streams, but in some degree, also, to the large amount of rain which falls here, owing to the closer proximity of the mountains. The residence at Weissbad may be useful to consumptive patients in a more advanced stage, who cannot bear the exposed situations of Gais and Heiden.

The treatment is directed by Dr. Hersche, of Appenzell, a very kind and well-informed physician.

The boarding establishment can accommodate 130 visitors; but some arrangements in the house, especially the closets, require improvement.

The small town of *Appenzell* (2,400 feet) has, of late, likewise commenced to become the residence of health seekers. The old fashioned good inn of the "Hecht" offers satisfactory accommodation, but the want of shade will be, I am afraid, here still more felt than at Gais and Heiden.

About a mile from Appenzell is the spa of *Gonten* (2,720 feet), possessing chalybeate springs, which are princially used for bathing. The whey cure is here practised simultaneously with the bathing. The climate is rather severe, through the predominance of the east and west winds. The visitors consist, almost entirely, of natives of Switzerland.

The last spa of Appenzell which I am going to mention is *Heinrichsbad* (2,360 feet above the sea), about one mile distant from the thriving little town of Herisau, and about four miles from St. Gall, and close to the railway station of Winkeln. There are here, again, two chalybeate sources, which are almost entirely used for bathing; to the whey cure, however, the place owes its principal reputation. The situation of the "Badhaus" is agreeable, and a few shady walks have been formed in the neighbourhood, which, though not grand, is exceedingly picturesque. The accommodation is sufficient for about 120 persons, and the management is well spoken of.

Art. XIX.—*On the Use of the Drainage Tube, for Removal of Fluids Effused into the Cavity of the Pleura.* By George H. Kidd, M.D., F.R.C.S.I., Assistant Physician to the Coombe Lying-in Hospital.

The application of the drainage tube to the treatment of effusions into the cavity of the pleura is of such recent date that it is a duty to record, for the present, every instance in which it has been tried, that a correct estimate may be formed of the true value of this mode of treatment. The case that I have to adduce now, derives an additional importance from the disease having commenced during the "puerperal week," a period when all inflammatory actions are prone to take on an unhealthy character, and are much less amenable to treatment than at other periods.

Mrs. J. A. M., of a very phthisical family, was confined of her third child, on Monday, the 26th October last. The labour was natural and of short duration, being completed within three hours. At the expiration of forty-eight hours, retention of urine occurred, with some fulness and slight tenderness in the iliac regions, and an accelerated pulse; and I learned (this being the first labour in which I had attended her) that she had suffered in the same way at each of her previous labours.

On Friday, the 30th, she began to be able to pass water without the aid of the catheter, and the tenderness and fulness had subsided, but the pulse still remained quick and the skin hot, yet the lochial discharge was free, and there was a sufficient secretion of milk. There was a slight cough, which she had before her confinement, and which now began to be troublesome; and, during the night of the fourth day after her confinement, she was attacked with acute pain in left side, corresponding to the diaphragm. I saw her at an early hour the following morning, 1st November, and found her sitting up in bed, unable to lie down from the pain and difficulty of breathing. The respiration was rapid and jerking, the countenance pale and anxious, and the pulse very rapid. On examining the chest, there was no abnormal sound to be detected, either by percussion or auscultation; but, from the character of the pain, the dyspnea and preceding cough, I considered that acute inflammation of the pleura was making its onset—an opinion in which Dr. Banks, who saw her with me a few hours afterwards, coincided; adding that he believed it was the pleura covering the diaphragm that was engaged.

Hiccough and vomiting, which occurred now, aggravated the pain considerably. At no time were friction sounds heard.

Effusion soon took place, and proceeded to such an extent as to render the whole of the left side dull on percussion, to obliterate all respiratory sounds, and to force the heart to the right side of the sternum. The usual treatment for procuring absorption of the effused fluid was persevered in till the 23rd November—that is, exactly four weeks from the confinement—but without the least effect; and, on this date, Dr. Banks again saw her with me. The condition now was as follows: decubitus on the back and affected side; respiration twenty-eight in the minute, and much hurried by exertion; pulse 128, small and compressible; the entire of the left side dull on percussion, and immovable. At the right side of the sternum there were two points of pulsation—one, an inch and a-half to the right of the sternum, and between the fifth and sixth ribs, corresponded to the apex; the other was close to the sternum, between the third and fourth ribs, and corresponded, probably, to the large vessels at the base of the heart. The diaphragm did not seem to be displaced, nor were the intercostal spaces obliterated; but the vocal fremitus was quite lost. The left side measured an inch more than the right. Emaciation was not very great.

It was now determined to draw off the fluid; and we tapped the chest with a small trocar and canula, and drew off three pints of sero-purulent fluid, taking out the canula as soon as the fluid ceased to come in a stream, but adopting no other expedient to prevent the entrance of air. The relief was immediate and marked, the pulse falling even while the fluid was flowing; but the chest soon filled up again, and, on the 5th December, was as full as before the operation, and the constitutional sufferings were as great. I had now again the benefit of Dr. Banks' advice, when we determined to introduce a drainage tube, and let the fluid run off as quickly as it was formed, and so allow the lung to expand as much as it was capable of doing, allow the heart to return to its place, and the walls of the chest to contract, and thus obliterate the cavity before the patient's strength should be irretrievably reduced by the continued formation of fluid and repeated tappings. Accordingly, we at once introduced a small-sized drainage tube, and with results that even surpassed our expectations. The heart returned completely to its place, the upper lobe of the lung expanded, the lower ribs fell in, and the discharge gradually ceased to flow; and, on the 8th February, there having been almost no discharge for more than a

fortnight, we withdrew the tube, introducing, however, a few threads of silk, to prevent the opening closing entirely—a precaution which proved to be unnecessary, as there was no further discharge.

The progress towards recovery, from the day the tube was inserted, was uninterrupted. On Christmas-day, Mrs. M., who three weeks before was suffering from great dyspnea and fever, was able to go up and down stairs with ease, and to join the family circle; and, soon afterwards, was able to walk and drive, and resume her household duties—the only inconvenience complained of being the presence of the tube, and the liability of her dress being soiled. The discharge was, after the first few days, variable in quantity; sometimes three or four ounces would escape in the twenty-four hours—sometimes not more than one ounce would come, and then for some days it would again increase, and without any evident cause. At one time it became dark-coloured and offensive, but without there being any sign of constitutional or local irritation, and at length it gradually diminished and ceased altogether; but we did not think it prudent to allow the openings to close completely; and on removing the tube, we introduced the silk with a view to the escape of any fluid that might still form, and to facilitate the re-introduction of the tube if any necessity should arise. On the 23rd of March, the silk was withdrawn, and the openings were allowed to close; and when last seen, on the 13th of April, she was in excellent health—able to walk several miles with ease and comfort. Her breathing was free, her pulse quiet, and she expressed herself as having no uncomfortable sensation to remind her of her illness.

The use of drainage tubes was first proposed by Chassaignac, for the treatment of abscesses and sinuses, and the plan was brought prominently under the notice of the profession here, in a very able and important paper, by the late Mr. T. H. Ledwich, published in the twenty-fourth volume of this Journal (November, 1857). Mr. Ledwich enters very fully into the consideration of the theory of the action of the drainage tube, adduces many examples of its use, and describes and figures the instruments proposed by Chassaignac for its introduction; but the application of the tube to the treatment of thoracic effusions was not attempted till the following year, when Dr. Goodfellow, of the Middlesex Hospital, used it in two cases. The first was that of a boy, aged seventeen, who had had a fistulous opening into the pleura, for a period extending over more than four years, but which did not permit of the free escape of the fluid, so that the retained portion became exceedingly offensive,

notwithstanding the daily introduction of a weak solution of Condy's fluid, and the patient was rapidly running down with hectic. The improvement, after the introduction of the tube, was almost immediate; the discharge, instead of being thin, unhealthy, and intolerably stinking, was much reduced in quantity, and became thick and nearly free from odour; the general health improved rapidly, and the boy —who had been almost constantly confined to bed for five years— was, in three months, able to walk about and return to his home. The second case was that of a man aged twenty-four, who had hydro-pneumo-thorax for more than a year, from the opening of a tubercular cavity into the pleura. At the time of the operation, the breathing was much oppressed, and the general health was apparently suffering from the increase of the effusion. After the introduction of the tube, "the man's health so rapidly improved that he was able to be up in a few days." Dr. Goodfellow's paper is published in the forty-second volume of the *Medico-Chirurgical Transactions*. The ultimate history of the cases is not given.

The next case published is that of a boy named Hill, recorded by Dr. Banks in the thirty-third volume of this Journal, in May, 1862. This was a case of acute pleuritis of the right side; the symptoms were so urgent that on the day after the boy came into hospital, three weeks after the commencement of the disease, paracentesis was performed, and four pints of serum drawn off. Re-accumulation rapidly occurred, and in six weeks the tapping had to be repeated. Again and again had this to be done, till at the seventh time not more than eight days had elapsed from the previous operation, the fluid retaining the characters of serum all the time, and not having a trace of pus. "The case appeared at this stage likely to terminate fatally, if some measure were not adopted to prevent the recurrence of the effusion; the strength had been latterly failing in a marked manner, and the respiratory distress increasing." Dr. Banks now determined to have a drainage tube introduced, and the operation was performed by his colleague, Professor M'Dowel, on the 24th October, 1861. Through the kindness of Dr. Banks I have had repeated opportunities of seeing this boy. His recovery has been most satisfactory. A slight secretion of purulent matter continued for a long period; at length, however, it diminished, so that the tube could be removed, and a few silk threads introduced— these he wore till about two months ago, and he is now in the enjoyment of rude health, and attending to his ordinary avocations.

The next cases recorded are to be found in *The Lancet* for 1862

(Vol. I, pp. 571, 2). One was a patient of Dr. Fincham's, in the Westminster Hospital, aged 17, attacked with acute pleurisy in August, 1860. When admitted into hospital there was distinct evidence of the presence of both air and fluid in the right pleura, but the source of the air was not evident. Dr. Fincham attributed it to the rupture of an air vesicle in the act of coughing, and it appears that a few days after admission crepitation was felt under the skin of the belly, near the umbilicus. He went on for three weeks without improvement, when the dyspnea became urgent, and paracentesis was performed, seven and a half pints of thin pus being discharged. In a fortnight the operation was repeated, and four pints more drawn off. A drainage tube was now introduced. "From this time the patient's recovery was uninterrupted. He had good nights, took his food well, and his countenance soon lost all indications of distress. During the first three weeks after the insertion of the tube the discharge was copious." In April, 1861, the heart had returned to its place, and there was slight vesicular breathing, with moderate resonance, under the right clavicle, as low as the nipple, but nowhere else; considerable contraction of the side had taken place. In June, 1861, he returned to London in good health, was ruddy and free from all look of illness; could walk several miles, run and ascend stairs without inconvenience. The side discharged about half an ounce of pus daily. The next report is of May 6th, 1862. His appearance, with ruddy complexion, is that of perfect health. He now works at his ordinary avocations. About a couple of drachms of pus are secreted in the twenty-four hours; and as the drainage tube may possibly act as a seton, it was to-day removed, and Mr. Hillman introduced at the lower opening a short piece of elastic catheter, which was fastened in.

The subsequent history of this case is given in the second volume of *The Lancet* for 1862, p. 229, and is of great importance. The catheter was kept in the lower opening for two or three days, but as no discharge came from it, but a considerable quantity from the upper opening, it was taken out, when the aperture at once closed. The discharge escaped freely; but, after ten days, symptoms of irritative fever set in, with much languor and depression, and the discharge had a faint disagreeable odour. At the beginning of the last week in May diarrhea ensued, and the discharge from the upper opening became exceedingly fetid. On the evening of the 31st it suddenly ceased, and violent vomiting set in, lasting about

forty-eight hours. The wound was re-opened, and a silver canula introduced, allowing a considerable quantity of fetid grumous pus, mixed with bubbles of gas, to escape; but the patient never rallied, and died on 7th June.

On examination a cavity was found capable of containing a quart, and lined with a thickened blood-stained membrane, dark and pulpy in parts, and having in it a couple of ounces of turbid sero-purulent fluid.

In his remarks on this case, Dr. Fincham attributes the death to the decomposition of pus and the absorption of its products into the system, and states that this followed the removal of the tube, as effect and cause, for after it was taken out there was not that immediate discharge of the effused fluid that the tube so effectually promotes; and he doubts whether a patient requiring the use of a tube must not be content to wear it during the remainder of his life. In this case, he says, a fatal issue ensued on its removal at the expiration of eighteen months; and in Dr. Goodfellow's cases nothing is said of their ultimate history, or whether the tube was ever withdrawn.

The second case recorded in *The Lancet* occurred in Bartholomew's Hospital, under the care of Dr. Farre, in a child, aged six years, but the history of the case stops with the insertion of the tube. There were three fistulous openings at the time it was used, and these had been discharging for some four or five months.

The next case recorded was published by Dr. Gordon, in this Journal, Vol. XXXV., May, 1863. It was a case of interlobular empyema, in which paracentesis had been performed, and a fistulous opening established; but as this had a tendency to close, Dr. Gordon inserted a drainage tube on the 1st of June. "For some days," he says, "the average quantity of matter drawn off in this way was about four ounces. This gradually reduced; and when he left the hospital on the 6th of August, the quantity drawn off was not more than two drachms in the twenty-four hours. Still the tube could not be removed; for on different occasions, when, from want of cleanliness it became closed, he was always attacked with cough, loss of appetite, and other symptoms, which told him that the purulent matter was re-accumulating, and these symptoms were invariably removed on the tube being re-adjusted. It was finally removed on the 6th of November, and he went to the country, and has remained perfectly well. The rapid increase in his weight was most remarkable."

The foregoing are all the cases that I have been able to find recorded in which the drainage system was used in thoracic effusions; but I was recently afforded, by Drs. Banks and M'Dowel, an opportunity of seeing a case that has not yet been published, in which Dr. M'Dowel introduced a tube. It was a case of hydro-pneumo-thorax, the result of the opening of a tubercular cavity into the pleura, and the tube was inserted merely as a palliative measure. The chest had been tapped several times previously at short intervals; and on one of these occasions so great was the dyspnea that when the patient was turned on the sound side for the operation his breathing became so embarrassed that apprehensions were felt for his safety. After the introduction of the tube the man lived for several weeks, free, at least, from the fear of suffocation and from the frequently repeated operations.

The cases of which I have thus briefly stated the particulars, though few in number, are sufficiently varied to allow us to arrive at the following practical deductions:—

1. That the drainage tube may be introduced into the cavity of the pleura with safety, and that in suitable cases it is a most efficient means of treatment.

2. In empyema, the result of acute or chronic pleuritis, it appears to be most useful; and in cases where the fluid in the pleura has been ascertained to be purulent the sooner the tube is introduced the better is the prospect of a cure, both because a portion of the lung may yet expand and because the strength of the patient has not been exhausted.

3. In cases where, on tapping, the fluid is found to be serous, it is better not to introduce the tube in the first instance, as the fluid may not re-accumulate; but if the fluid re-accumulate quickly, producing much distress of breathing, the plan of drainage claims to be considered, and the case of the boy, Hill, recorded by Dr. Banks, affords great encouragement in recommending its use.

4. Where a fistulous opening exists in the wall of the thorax, but the discharge does not escape freely—the retained portion becoming decomposed—the making of a counter-opening at the lowest part of the cavity and introducing a tube, is shown by the first of Dr. Goodfellow's cases and the one recorded by Dr. Gordon, to be highly advantageous.

5. In cases of hydro-pneumo-thorax, such as Dr. Goodfellow's second case and Dr. M'Dowel's, the introduction of the tube may not only palliate the sufferings of the patient, but prolong life.

6. The removal of the tube must not be attempted so long as pus continues to be secreted; but when this has ceased, the tube may be withdrawn, as shown by Dr. Banks' case, Dr. Gordon's, and by that of Mrs. J. A. M., now recorded. When the tube seems to be keeping up the discharge, we may, by inserting silk threads, keep the opening patulous, so as to allow fluids to escape, and, at the same time, retain in our hands the means of re-introducing the tube with facility, if the necessity for it should occur. The number of threads need not be great, and may be gradually reduced. The boy Hill had but a single thread in the openings for many months.

The introduction of the tube is a very simple operation. An opening is made with a scalpel at the usual place for tapping, between the fifth and sixth ribs, about midway between the spine and sternum. An instrument is now to be passed in, and the cavity explored; it is then made to press against the intercostal space at the lowest part of the cavity, and is easily detected, by the finger placed opposite to it, when it is cut down upon with a scalpel. Mr. De Morgan, who operated in Dr. Goodfellow's cases, used an iron probe, to the eye of which the tube was attached by a thread of silk, and the probe was passed through, drawing the tube after it. Dr. M'Dowel—in operating in Dr. Banks' case, on the boy Hill—following Mr. De Morgan's directions, used a probe, but found it difficult to direct it, or make it press sufficiently against the intercostal spaces, and was obliged to lay it aside and use a steel sound. With this he easily made the second opening, but experienced considerable difficulty in getting the tube brought through. He suggested a Brodie's catheter for future operations. In my case I used a uterine sound. The broad handle of this instrument, and its firmness, enabled me to explore the cavity satisfactorily, and to make sufficient pressure on the intercostal space to guide the knife in cutting down on it. Having passed it through, I secured a ligature on it, which the bulbous form of its point held securely while I withdrew the instrument. I then attached the tube to the ligature, and easily drew it through the openings. In the case I saw Dr. M'Dowel operate on recently, he used the same instrument. The curved trocar of Chassaignac might be used in the operation, but it appears to me to be very inferior to the uterine sound After its introduction, it is necessary to withdraw the trocar, leaving the canula in the wound, and re-introduce it with the blunt end foremost, to explore the cavity; then having fixed on the place for making the counter opening, the trocar must again be

withdrawn and reversed; and, unless the instrument is very much better made than any I have seen, this cannot well be done without shifting the canula out of the position that had been decided on; and even if this difficulty be overcome, there is considerable danger of injuring the intercostal artery in perforating the wall of the thorax from within outwards, as it lies in an exposed situation on the inside of the rib.

The tubes sold in the shops are of two kinds, vulcanized rubber and pure rubber. The vulcanized has no advantages, as the temperature of the body is quite enough to keep the pure rubber elastic at all times; and if the tube has to be worn for any length of time the vulcanized rubber may become brittle, as it usually does when long in use. The tube ought to be shifted occasionally, lest the openings should be closed. In my case, I placed the ends of the tube in a small waterproof sponge-bag, slung round the shoulders, and fastened close to the openings by a slip of adhesive plaster; which, being attached to the skin at one edge, and to the inside of the bag at the other, served also to direct the current into the bag.

ART. XX.—*Practical Observations on the Treatment of Organic Stricture of the Urethra, by means of Seaweed Bougies.* By MAURICE H. COLLIS, M.B., F.R.C.S.I., Surgeon to the Meath Hospital and Co. Dublin Infirmary, &c.

IT is not my intention to write a long dissertation on the various forms of stricture and the many modes of treatment that, from time to time, have been proposed as efficient for the cure of one or all; nor do I wish to lay down, as if *ex cathedra*, which form of stricture is suitable for gradual dilatation, and which for the "immediate plan" Varying in their individual characters as widely almost as their subjects, strictures may be wisely treated by various methods, and no one plan or material can claim a pre-eminence. *Suum cuique.* The practical surgeon must be ready to avail himself of each in the case to which it is best suited.

With these preliminary observations, I beg to bring before the readers of the *Dublin Quarterly Journal of Medical Science* a material for the construction of bougies, which has been applied in Scotland, and for which we are indebted to Dr. Sloan, an eminent surgeon in Ayr. My attention was lately drawn to it by Dr.

Alexander Simpson, of Edinburgh. In certain varieties of organic stricture it becomes advisable to use a bougie which will expand within the urethra rapidly, and which, by its pressure, will not only dilate the passage, but also diminish sensibility, or set up a new action in the part sufficient to promote the absorption of some of the organized material. This may be, and often is, required as a preliminary to the use of the dilator, even in its modified form, as improved by Mr. Smyly. It is also at times required in traumatic strictures, those which give us the best example of genuine organic stricture of an extreme type. In these, whether complicated with, or free from fistula in perineo, I should not care to run the risk of using the immediate plan, at least until some considerable way had been made by other and more gradual means of dilatation. For the former of these objects we have hitherto been dependent on the catgut bougie. This means, however useful in certain limits, is slow, and more or less expensive, from necessary destruction of these bougies after each occasion of their use. For the latter, in addition to catgut, we had to rely upon the conical bougie, or staff; and as these require some force to be of use, they are found more or less painful, and the staff might be a source of danger in perforating the wall of the urethra. Hence, a substance which possesses a power of expansion greater than catgut, with sufficient tenacity or toughness, and which is not necessarily destroyed on the first occasion of its use, was an undoubted desideratum. Dr. Sloan, of Ayr, has supplied us with this material, and has furnished us with one more example of the adaptability of the commonest materials to useful purposes.

Vilior alga is a proverb as old as the days of Horace, and yet this worthless substance has in our days contributed more than one of our most valuable medicines. Iodine, and, more lately, bromine, have taken a place in practical medicine which has deprived the Horatian simile of its truth, and now the domain of surgery is enriched by a contribution from the same source.

Freely growing along our shore, the *laminaria digitata*, commonly known as the *sea-girdles* or *tangle*, supplies admirable material, in its tough perennial stem, for bougies of a superior description. The great tenacity and strength of this sea plant must be familiar to all who have rambled along the shore; when dried, it becomes hard and capable of reduction into bougies of great strength and of very considerable finish. They will receive and retain any curve that may be given to them; and by dipping them in warm water and rubbing them between the fingers, their surface will become

sufficiently soft and smooth for introduction into the urethra. Oil may be used with them as with other bougies, but in time its action upon their tenacity would be deleterious. When immersed in water they swell rapidly—in a few hours more than doubling their diameter.

I quote the following remarks from Dr. Sloan's paper:—

"The Algæ are purely cellular in their structure, possessing no vascular system like phanerogamous plants; they have the property of drying readily at ordinary temperatures, in so doing diminishing greatly in bulk, becoming firm, elastic in the sense that wood is, and very tenacious. When the drying process is arrested at the proper point, they have a consistence rather softer than horn. The additional property which renders them valuable in surgery is, that in this state they retain for years the power of readily absorbing moisture, and in a few days resuming almost their original size.

"The stem of laminaria digitata will probably be found best adapted for surgical purposes; it is one of our commonest seaweeds, and is readily recognized by its appearance of possessing root, stalk, and branches. In this climate it acquires a length of from 2 to 12 feet, with a diameter of from one to several inches.

"The property of diminishing in bulk when dried has long been put to use by the western Celts in forming the handles of knives, &c.; the end usually fitted into the haft, being inserted into a portion of the recent stem, is firmly grasped by the contraction that takes place in drying, while the soft and comparatively fragile material assumes the appearance, and almost the consistence of buckshorn. I have found this a most convenient method of mounting a lancet for opening abscesses of the tonsil. The only other manner in which I have myself used it, is in dilating a sinus, which it effected rapidly and well."[a]

Other surgeons to whom Dr. Sloan communicated his ideas used the tangle in uterine cases, a mode of application to which it is signally adapted from its rapid powers of swelling and comparative freedom from bad smell. For this purpose I believe it has since been used in this city.

Dr. Sloan further remarks:—

"The various further uses to which this new material may be

[a] Glas. Med. Jour.—Vol. x, p. 281.

applied are yet to be determined. The most important would be the dilatation of stricture of the male urethra. This might be done in two ways; as before mentioned, the substance is purely cellular in structure, so that only the portions directly exposed to moisture expand. Copal varnish effectually prevents the access of moisture, so that a bougie could be formed, expanding only at a given point, or a conical dilator might be made to project from a catheter, like Lallemand's porte caustique. Whichever way employed, it would be better to use two or more graduated dilators than one continuously, to obviate the possibility of a bulbous expansion forming behind the stricture. The lachrymal canals and the Eustachian tube seem quite within the reach of this agent. I have found that young plants, from half an inch to an inch in diameter, when fresh, expand more readily and to a greater extent than older specimens. With regard to the expansive power, I find that the tangle is merely retarded in expanding by a weight which flattens the sponge. A tangle tent freely exposed to moisture doubles its diameter in 4 hours, and in 48 hours increases to $1\frac{1}{2}$ times. A tent formed of gentian root increases only $\frac{1}{3}$ in the same time. There is a marked increase in length in the tangle tent which must, in some circumstances, be allowed for. Large instruments, such as would be required for stricture of the rectum, might be built of separate portions."

Their dilating power is, therefore, great—it is also rapid. One case of very resisting organic stricture, in which I lately used them, may serve as an example:—In less than a week No. 9 could be passed with ease, although at first the stricture was, with great difficulty traversed by No. 2. Only three times was an instrument introduced, and the entire number of hours that they were left in amounted to less than three. Considering that the case was one of traumatic stricture this result is singularly satisfactory. The amount of pain produced by these bougies is trifling, so long as they are left in contact with the mucous surface of the urethra, and not moved from the situation in which they have been first placed; but if moved backwards and forwards, after a lapse of twenty minutes or upwards, when they have begun to swell, much pain will be produced; this interference is unnecessary, and I only allude to it in order to caution surgeons against it. Once placed in the position required, they should be left there until it is judged proper to remove them. And this leads me to remark upon another point

in connexion with their rapid enlargement. When in free contact with moisture, they swell so much that their diameter is more than doubled. Now, although in the smaller numbers this increase in size may not be capable of producing any mischievous consequences, yet if we see fit to use such a size as No. 7 or 8, it will be most important to bear this property in mind:—Suppose such a bougie introduced fully into the bladder, beyond a stricture situated about the bulb, all that part of the bougie in contact with urine dilates to the full extent—that within the grasp of the stricture, only to the size of No. 10 or 11: hence we have a large and somewhat softened bulb at the distal side of the obstruction, and it is plain that its withdrawal will be both difficult and painful, even if the tenacity of the instrument be sufficient to prevent the serious accident of its fracture. Hence the caution is imperative of not advancing the bougie into the bladder—in fact, the distance of the stricture from the orifice should be carefully measured before the bougie is finally settled into place, and the point of the bougie should only just pass beyond the vesical end of the stricture. In a few moments after the passage of the bougie the urethra appears to take a firm grip of it, and any disturbance of the instrument will be attended with much pain; this is mainly owing, no doubt, to the dryness of the urethral mucous membrane: all its moisture is being shared with the bougie, and until this becomes moist and soft, at least upon its surface, the mutual adhesion will be considerable, and the pain that the patient will suffer on any disturbance of the instrument will be considerable. Some of the pain is, no doubt, owing to the salts still contained in the bougie, and their contact with portions of the urethra in a state of hyperemic irritation; but it is remarkable that no unusual pain is felt in the ordinary use of the bougie, although the amount of saline material contained in them is considerable. When dry and new their smell and taste at once betrays their origin.

Much of the inconvenience which arises from their use may be obviated by coating them with copal varnish, as suggested by Dr. Sloan.

Considering, however, their great distensibility in fluid, and the pain produced by their disturbance before they have became soft and moist by imbibition of fluid from the urethra, it is well to repeat the caution that they should be inserted no further than the vesical end of the stricture, and that once inserted they should not be disturbed until finally removed. This caution, of course, is only applicable in cases where they are used for the special purpose of rapid

dilatation. If we use them as bougies are ordinarily used, for gradual dilatation, such cautions are obviously not required. How far they will supersede gum-elastic instruments for this purpose is a question; they are not so smooth at first—or rather their smoothness is different—it is the smoothness of a soft moist substance rather than of a hard polished one; hence, water is their appropriate lubricant, and not oil, as in those with a hard polished surface. One word further upon the strength or tenacity of these bougies:—They are remarkably tough; no sudden force will snap them when moist; they yield to a force exercised in their long axis; but the amount required is immense. Even in comparison with other materials whose powers of resistance are considerable they yield a favourable result.

I have found No. 7 capable of supporting a weight of 84 lbs., and the smaller bougies sustain a proportionate strain, before they give way.

This is nearly equal to what catgut will bear.

In conclusion I beg to recommend these bougies for a fair trial in suitable cases. They are not faultless, nor are they universally applicable; but they are useful under the circumstances I have named, and may well deserve the attention of the practical surgeon.[a]

[a] The bougies are manufactured by Kröhne, of London, and were procured for me by Messrs. Fannin, of Grafton-street.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Census of Ireland for the Year 1861. *Part III. Vital Statistics.* Vol. I. *Report and Tables relating to the Status of Disease.* Dublin: Alex. Thom. 1863.

On the 28th of January, 1864, at the close of the ceremony of the investiture of Lord Dufferin as a Knight of St. Patrick, in Dublin Castle, His Excellency the Earl of Carlisle conferred the honour of knighthood on Mr. William R. Wilde, the author of the above report; and, addressing him, observed:—"I do so, not so much in honour of your high professional reputation, but to mark my appreciation of your services to statistical science, and especially in connexion with the Irish Census."

In thus enrolling the name of Wilde in that honourable list in which figure a William Rowan Hamilton, and a Robert John Kane, His Excellency performed a graceful act, one which has been well appreciated by the literary public, and by every member of an honourable profession.

Whether we look at the *Narrative of a Voyage to Madeira and the Mediterranean*, *The Beauties of the Boyne and Blackwater*, *The Catalogue of Antiquities of the Royal Irish Academy*, the Census Reports of 1841, 1851, and 1861, a whole library of *The Dublin University Magazine*, and *The Dublin Quarterly Journal of Medical Science*, or those numerous professional works which enabled His Excellency to speak of Mr. Wilde's reputation as European, we are convinced that knighthood was never better earned nor more gracefully conferred. We do not hesitate to praise this report at the outset, and we do so fearing that it is the last from the pen of Sir William Wilde. His report of 1851 was the result of the first attempt in Ireland to acquire a knowledge of the temporary and permanent diseases of the nation on a given day, so as to see how many of the population were, by infirmity, rendered incapable of

ministering to their own wants, or to those of their fellow countrymen. This has been carried out in 1861, when the Census was taken by the Constabulary, and secondary and tertiary inquiries procured the minutiæ to which we shall presently refer.

This Blue-book extends over 167 pages, and is divided into sections, thus:—

Section 1.—Report upon the Number and Condition of the Deaf and Dumb.

Section 2.—Report upon the Number and Condition of the Blind.

Section 3.—Report upon the Number and Condition of Lunatics and Idiots.

Section 4.—Report upon the Number of Lame or Decrepit in Ireland.

Section 5.—Report upon the Number and Condition of Paupers in the Workhouses of Ireland.

Section 6.—Report upon the Number and Condition of the Sick in Public Hospitals for the Temporary Reception and Treatment of Accidents or Diseases.

Section 7.—Report upon the Number and Condition of the various Asylums, Hospitals, Alms-houses, Penitentiaries, and other Charitable Institutions for the Permanent Residence of the Distressed Sick, Aged, and Infirm in Ireland.

Section 8.—Report upon the Number and Condition of the Inmates of Prisons, Bridewells, Convict Depôts, and Reformatories.

Section 9.—Report upon the Number of Sick at their own Homes, and Summary of the Total Number of Persons Labouring under Permanent or Temporary Diseases in Ireland.

In Section 1 of *The Report on the Status of Disease*, one of the Census Blue-books of 1851, may be found information respecting the deaf and dumb, which, in Section 1 of the book now before us, is characterized as "the most accurate and minute which had at that time been presented to the public in any country in Europe." The same inquiries were instituted in 1861, and information was obtained on the following points:—"Whether the person was born deaf and dumb, or became so afterwards; to what cause the malady was attributed; whether the persons so returned were paralytic, idiotic, or in any other way mentally or physically affected; whether other members of the family, either of the present or previous generation, had been mute; and also as to the education, social condition, and other circumstances, of all the persons so returned."

Some misconception having arisen as to the meaning of "deaf and dumb," a second or special inquiry was made, and the result is given in Table I. (pp. 2 and 3), to which reference shall shortly be made. Queries were made as to death and emigration among deaf mutes, and also as to the identification of the deaf and dumb.

Table I "shows, by provinces, the total number of deaf mutes, from all causes, in the different counties, cities, and certain towns in Ireland," and "is divided into the deaf and dumb, and the dumb not deaf—the former numbering 4,930, and the latter 793." The congenital mutes were "as many as 4,010, or 476 more than were afforded by the returns of 1851, while the population has decreased by 753,418 persons. In 1851 the proportion of this class to the population was 1 in 1,573, while in 1861 it was 1 in 1,370. This increase in the relative proportion of the true deaf and dumb to the population, between the former and the present decade, may be accounted for by the immense extent to which emigration has increased between 1851 and 1861—the emigrants being generally the most healthy persons in the community, while the deaf and dumb were left behind, either with relatives or in public institutions. But with respect to the absolute increase, it must be either acknowledged as a lamentable fact, or partially accounted for by the belief that the present Census has been more accurate in its details than the former—a circumstance not to be wondered at, considering the state of the country in 1851. The proportion of the sexes among the deaf mutes is, according to the present returns, 100 males to 80·58 females—thus presenting a greater number of females than in 1851, when there were 100 males to 74·50 females." The pupils in institutions are, in Table I, distributed through their different homes, and, as compared with 1851, the greatest local increase is in Dublin, Down, Monaghan, Sligo, Armagh, Tyrone, Donegal, Antrim, and Cork; and, "in proportion to their population, congenital muteism is greatest in the counties of Donegal, Dublin, Carlow, Cork, Tyrone, Armagh, and Kilkenny, the average proportion among which has been 1 in 1,148; and those localities in which the proportion to the population is least are Carrickfergus, Kilkenny City, Belfast, the suburbs of Dublin, and Limerick and Waterford Cities."

In the second compartment of Table I. are arranged the subjects of acquired muteism; they are 296 males and 302 females = 598, or 179 more than in 1851. The proportion to population was, in 1851, 1 in 11,258, and in 1861, 1 in 8,307. The greatest amount

of it was found in the counties of Dublin, Kilkenny, Limerick, Tipperary, Waterford, and the City of Limerick. The 3rd section in Table I. includes cases of muteism of uncertain origin; and in the fourth are arranged the paralytic or idiotic mutes. These now amount to 136, or 331 less than in 1851.

"In the second general division of Table I. are included the dumb not deaf, who amounted to 723—the sexes being 442 males and 281 females. This number exceeds by 290 the return for the same class in 1851. Of the total 723, as many as 265 persons were dumb without other defect, 96 were also paralytic, 270 were idiotic as well as dumb, and 92 were both dumb, paralytic, and idiotic. The particulars of several of these cases will be found at page 21."

The total of mutes is 5,653—100 males to 80·49 females. Of these there were in Leinster, 1,303; in Munster, 1,559; in Ulster, 1,949; and in Connaught, 842; being an increase of 473 over the number returned in 1851.

Table II. shows the proportion of males to females among the deaf and dumb, and their proportion to the civic and rural populations. From this table it appears that the congenital cases are least among the civic and most among the rural population, as 64 to 100; while in 1851 they were as 81 to 100.

Table III., showing the ages of deaf mutes, differs from that of 1851, "inasmuch as while on that occasion the ages were afforded by decennial periods after 20 years, they are now given in quinquennial periods from under 5 to 90, and upwards. The ages at which the greatest number of deaf mutes were returned, both in 1851 and 1861, were from 10 to 15 years." Forty of the cases in Tables I., II., and III. were in lunatic asylums at the time of taking the Census.

Table IV. gives the religious professions of deaf mutes, which may be shortly put thus:—Established Church 791, Roman Catholics 4,275, Presbyterians 522, Methodists 27, Independents 3, one Baptist, one Member of the Society of Friends, and 33 of other persuasions, comprising "3 Seceders, 3 Unitarians, 1 Separatist, 1 Jew, and 23 whose religious professions could not be ascertained."

Under the head Mutes in Workhouses it is stated that the number of deaf mutes of the "school age" in Irish workhouses has decreased during the last decade from 76 to 14. In *The Status of Disease* (1851) reference is made to the Act 6 and 7 Vict., cap. 92, sec. 14, which provides for the maintenance of deaf and dumb or

blind persons, under the age of 18, in suitable asylums. The present report draws attention to this legal provision and repeats the following recommendation:—"As mute children, permitted to grow up in ignorance and poverty, must remain a permanent tax upon their respective unions; and, as they cannot be properly instructed, except in schools specially constituted for the purpose, we think it might be found an eventual economy to have them sent to some of the existing seminaries, that they may receive both a literary and an industrial education." The poor-law unions which have deaf mutes, and yet have not availed themselves of the above legal provision, are thus ingloriously tabulated as abettors of ignorance and idleness, to wit:—"Antrim, Ballina, Bawnboy, Clogheen, Cork, Dublin South, Enniskillen, Fermoy, Kilmacthomas, Lurgan, Millstreet, New Ross, and Thurles."

Table VI. shows the occupations of deaf mutes; and from it appears the fact, that in 1861 as compared with 1851 there is an increase of handicrafts and school learning, the number of scholars being nearly double that returned in the last decade. Nineteen deaf mutes were employed in a literary way—ten of these being printers, one an editor, three engravers, and two schoolmistresses. They are engaged in a great many useful trades and occupations, such as farmers, land-stewards, ploughmen, gardeners, millers, bakers, fishermen, bleachers, dyers, curriers, bootmakers, masons, blacksmiths, cutlers, carpenters, sailors, draughtsmen, artists, and shopkeepers. From Table VII. it appears that farmers, farm-labourers, and herds, "furnished the great majority of cases whose parents had specified occupations;" and the attention of the reader is drawn to the importance of distinguishing the congenital from the acquired cases, "as well as those who were dumb only, or affected with paralysis or idiocy." Table VIII. gives the number of mutes in a family:—"There were ten instances of twins, in each of which both children were deaf and dumb; and in 3,138 cases—1,779 males and 1,359 females—there was one mute in each family." In 357 cases two mutes were born in each family; in 107 of these both were boys, in 75 both girls, and in 175 a boy and a girl. In 159 instances three mutes were born of the same parents, in 36 instances four mutes; in the great majority of these instances the sexes were equal, as in 1851. Thirteen families had each five mutes, and in four of these instances the sexes were two males and three females. The Report then states:—"The results afforded by this minute investigation of the circumstances of the deaf and dumb,

taken in connexion with our previous investigations, lead us to suppose that all these combinations of sexes are influenced by some natural law, whose fixity excites our wonder, but the cause of which we cannot explain." Six mutes in a family occurred five times, and seven in one case, in which, says the Report, "there was neither hereditary predisposition nor any other probable physiological or pathological reason assigned to account for this very remarkable peculiarity." At pp. 14 and 17 of the *Status of Disease* for 1851, a remarkable case is recorded. In it the parents were third cousins, and had seven mute children, all females, six of whom were twins. A recent inquiry ascertained that one only of these now survives, and that this family had eight deaf and dumb children born in it.

From Table IX. we learn that in families having a single mute it was most generally a first child, and from Table X. that mutes were most frequent in families of six or seven.

At page 20 the causes of congenital muteism are discussed; and with respect to consanguinity of parents, we find that "in 242 instances the parents were related in the degrees of either first, second, third, or fourth cousins." These intermarriages produced plenty of deaf mutes, deaf and dumb idiots, and paralytics, as well as persons who were deaf, dumb, and blind:—"In one of the cases of four deaf mutes the mother had been married twice, each husband being a relation of hers, and the children of both marriages were affected." These facts are peculiarly valuable just now, when a good deal of French medical opinion is running in favour of the modern notion that marriages of consanguinity are not disadvantageous.

Table XI. shows the result of hereditary predisposition, or family peculiarity, in the production of congenital muteism. After a most elaborate deduction, specifying many instances of collateral and direct relationships, the conclusion arrived at is, "that, contrary to the generally received opinion, the amount of morbid action was transmitted with greater intensity through the father than the mother."

Inquiry into the marriage state of deaf mutes obtained these results:—135 deaf mutes were married; in 129 of these one only of the parties was deaf and dumb. From the marriages of 91, 213 children resulted, of whom three only were mutes. Three cases of intermarriage, where both parties were deaf and dumb; offspring, twelve, and none of them either deaf or mute. The Report thus continues:—"It is remarkable, that while muteism is often found

in several members of a family derived from a common stock, the defect is comparatively seldom transmitted direct from parents to children."

Pages 21–24 contain a provincial record of rare or remarkable cases. Some of these are curious enough. Thus, No. 4 is said to have become a deaf mute at 5 years of age, "while taking a drink." No. 61 became dumb at 4 years old, by drinking boiling water from the spout of a kettle. No. 61, at 20 years of age, got deaf and dumb from a severe beating. No. 210, aged 40, became a deaf mute when 10 years old, from "her father having cut down a whitethorn bush in a fort." No. 85 became deaf and dumb at the age of 103. Many of these causes assigned by the relatives give a fair insight into the popular notions of our peasantry, who also ascribe this defect to childbed, colds, mental anxiety, and other more common causes.

Table XII. sets forth the causes of acquired muteism. 648 became deaf mutes by disease or accident. Section 1, which includes those affections acting locally on the organs of hearing, exhibits scarlatina as by far the most frequent cause of acquired deaf muteism. Section 2 (Diseases and Accidents Affecting the Ear Through the Brain and Nervous System) shows fever to be a prolific source of these defects.

With respect to the education of the deaf and dumb, this Report shows that of 3,830 uneducated persons, 215 were under 5 years of age, but so many as 930 were aged from 5 to 14, "and, therefore, of the *school age*, or that period at which, according to the most eminent authorities, this afflicted class of the community are most susceptible of education." Since 1851 this Report shows a great increase of education among deaf mutes, the total educated in 1851 being 439 less than in 1861.

The Commissioners have not thought it necessary to recapitulate the most interesting and elaborate history of the Institutions for the Deaf and Dumb, given in the Report of 1851; they merely remark that "the only Institution for the Deaf and Dumb recorded in the following Table, which has not progressed since the date of our previous Report, is the Dublin Day School for the Deaf and Dumb at the Dorset Institution, in which there was only one pupil at the time of taking the last Census."

In Table XIV. the reader will find "the number, locality, and date of erection, with the amount of accommodation, of the several Institutions for the Instruction of the Deaf and Dumb."

Table XV. shows the counties, cities, or towns from which the

pupils in the seven institutions, named in Table XIV., were derived; and this portion of the Report concludes with a strong recommendation in favour of engrafting on the National system of education institutions for instruction of deaf mutes, or granting State aid to those schools already in existence, or compelling Boards of Guardians to send to suitable educational institutions those deaf, and dumb, and blind persons under 18 years of age, whose cases are contemplated by the Poor-law Act, 6 and 7 Vict., cap. 92, sec. 92.

The following deserves especial notice:—"The untimely death of the late Professor O'Donovan, who reported upon the ethnology of the deaf and dumb, from the names submitted to him in 1851, prevents our entering on that branch of the subject upon the present occasion."

Perhaps the most remarkable feature of this part of the Report of 1861—and one in which it stands *per se*, as compared with any previous attempt in any country—is Table XVI., which shows "the number and ratio to the population of the deaf and dumb, the blind, the lunatic and idiotic, in twenty-one countries in Europe and America." In the *Status of Disease* of 1851, the information of this kind was derived from published works, and so depended on the authenticity of their compilers; but in the present Report it is derived from answers to letters addressed to the chiefs of Statistical Departments in thirty-four countries in Europe and America. From some no satisfactory information was received, while from various causes—such as that in some countries no inquiries of the kind had been made —the information was not of much use. That obtained from twenty-one countries is tabulated in a remarkably clear manner, while the body of the Report is occupied with expressions of thanks to the various contributors; and the numerous foot-notes supply an amount of statistical learning of which it were vain to attempt an analysis. From this part of the Report may be learned the periods, as well as the time of the year, in which the Census was taken in twenty-seven countries:—"In the British Isles, Belgium, Holland, Norway, Piedmont, Switzerland, Canada, Newfoundland, Nova Scotia, and the States of America, the Census of the population is taken decennially; in Prince Edward Island, every seven years; in Austria, every six years; in France, Denmark, and Sweden, every five years; in Savoy, every four years; in Prussia, Spain, Hanover, Saxony, Bavaria, Wurtemburg, and Hesse-Darmstadt, every three years; and in Russia, about every fifteen years." Taking all the populations together, it appears that "the total number of deaf and dumb

was 94,670, or in the proportion of 1 in every 1,526 of the population, and that the proportion of the sexes was 78·06 females to 100 males." In only one instance—that of Oldenburg—was a satisfactory reply given to a query as to the relative numbers of cases of congenital and acquired muteism.

We cannot speak too highly of Table XVI., resulting, as it has, from labour and industry untold, and giving to us most valuable information, on the only reliable data yet published.

The Deaf and Dumb Statistics both for 1851 and 1861 are the most minute and faithful which have ever come under our notice; and we would direct especial attention to that part of the Report which treats of the results of consanguinity and hereditary predisposition.

Section 2—Report upon the Number and Condition of the Blind in Ireland. From the Census Reports of 1851, which gave the first authorized information as to this point in these kingdoms, it appeared that in Ireland alone there were 7,587 blind persons, or 1 in 864 of the then population. This was partly accounted for from the prevalence of epidemic ophthalmia during the three years preceding 1851, and from the Irish exodus, which left the blind to the paternal care of the Government. In this case also two returns were made, the second, or special return, distinguishing the total from the partly blind, the congenital from the acquired cases, the cause of the defect, the family history, with the educational and industrial state of the individual.

Table I. "exhibits, by sexes and in localities, the numbers of the totally blind, and their proportion to the population in the different provinces, counties, cities, and towns, as well as those that were located in workhouses in Ireland, on the night of the 7th of April, 1861. From it we learn that there were as many as 6,879 persons totally deprived of sight, of whom 3,149 were males and 3,730 females, or in the proportion of 100 males to 118·45 females. Of these persons 1,393 were in the civic districts—composed of cities and towns containing 2,000 inhabitants and upwards—in which localities most of the institutions for the blind are situated; 4,566 persons were in the rural districts, and 920 were inmates of workhouses. Compared with the returns afforded by the Census of 1851, it appears that the number of blind is less by 708 than on that occasion, when the number was 7,587, and the proportion to the population 1 in 864. But, in consequence of the decrease of the people, during the last ten years, from 6,552,385 to 5,798,967,

the absolute proportion of the blind to the population is now somewhat greater than at the former period, being at present 1 in 843."

In Munster there was 1 blind person in 596; in Leinster, 1 in 872; in Ulster, 1 in 1,052; and in Connaught, 1 in 1,078. The proportion to population was greatest in the city of Limerick, where it amounted to 1 in 371; while it is least in the County of Antrim, viz., 1 in 1,383. "Both as a province, and throughout all the counties and cities of which it is composed, Munster has on the present occasion, as well as in 1851, afforded the largest proportion of blind." In these proportions the pupils in asylums have been distributed throughout the respective counties and cities from which they were derived

The proportion of sexes shows a slight increase of females over males since 1851; and, from Table XVI. of the preceding section, it appears that in a population of 144,424,107, spread over 21 different countries, the total number of blind was 114,002, or 1 in every 1,267.

Table II. shows the religious professions of the blind, and exhibits the proportions thus in the gross:—Roman Catholics, 1 in 800; and Protestants (exclusive of 2 Jews), 1 in 1,039.

From Table III. we learn the education and marriage state of the blind. "Compared with the state of education of the blind in 1851, these figures represent a very remarkable difference, for upon that occasion there were but 953 blind persons returned as educated, the difference between the two periods being 1,994 in favour of the present. Of the 3,891 uneducated blind, 591 persons were in workhouses. In 41 instances, chiefly composed of mendicants and strollers, the education could not be ascertained. Of the uneducated the sexes are in the proportion of 100 males to 156·49 females; whereas in the educated of the same class the ratio of the sexes is 100 males to 83·73 females." More than half of the blind of all ages and sexes were married.

Table IV., which extends over four pages, shows, by ages and sexes, the occupations of the blind, before or since the time of their affliction. Although the bulk of the Irish population belongs to the agricultural class, yet the number of blind, from among the trades and occupations, ministering to clothing and to house accommodations are in the ratio of 100 to 54·72 of those ministering to food. Under the head of Ministering to Clothing we find the most numerous are the netters and knitters, who mostly acquired these trades after the loss of sight. Of the trades ministering to

lodging, or manufacture of furniture or machinery, the most numerous, excepting servants, are the basket-makers, who, for the most part, acquired their trade after the loss of vision.

Among those ministering to conveyance and travelling we find 30, "all males, among whom were 19 sailors."

Under the head Literature and Education there are 27, of whom 9 were schoolmasters and 3 schoolmistresses.

Under the head Ministering to Amusement we have very interesting data, arising, doubtless, from that compensating delicate susceptibility to sound which many blind persons are known to possess, and which, as it is generally aided by taste, forms a delight and solace in bereavement which can never be fully estimated by those who have the full use of all their senses. Accordingly we find, in Table IV., 420 males and 87 females thus employed; they "consisted of performers on the violin, bagpipes, harp, organ, flute, and pianoforte."

Referring to this table we find only 1 singer and 1 piano-tuner, while there are 4 piano-players, 5 organists, 6 flute-players, 9 harpers, 80 pipers, and 205 *violin-players*. The terpsichorean tastes of the peasantry cannot have failed to exercise a strong influence in favour of the violin, as for all rural purposes it is the most, indeed the only, useful instrument; while the fact that a delicate sense of touch, as well as a good ear, can greatly help towards acquiring a smattering of the knowledge of it, has doubtless made it so popular as it is. The 5 organists, we would fondly hope, are performers on that noble instrument, the church organ, as it were a crime against the comfort of quiet streets to encourage those industrious tormentors who give a daily alternate grind at *A Chè la Morte* and the 100*th Psalm tune*, with a saltatory accompaniment performed, *obligato* to both, by a monkey.

Under the head of Ministering to Health there were but 3 blind, and under Religion 14.

The class "Government and Justice" has 276, all males, and nearly all from the army; and 656, now living in this country, have been discharged from the army from 1851 to 1861. The blind, as a class, live to a good age. There were 2,310 from 50 to 70 years of age; 868 from 70 to 80; 654 from 80 to 90; while there were only 340 under 15 years of age.

Table V. shows the Number, Locality, Date of Erection, and Amount of Accommodation of the several Irish Institutions for the Blind. In the *Status of Disease* for 1851 the public were furnished

with a minute historical account of Simpson's Hospital, the Richmond Institution, the Molyneux Asylum, the Ulster Institution, and the Blind Asylums at Limerick and Cork—the six institutions of this kind which then existed. On these nothing is remarked in the present Report, save the removal of the Molyneux Asylum from Peter-street to Upper Leeson-street; but reference is made to three additional institutions, established since 1851, all resulting from individual exertion, and two of them largely supported by public benevolence. "The Macan Asylum, at Armagh, opened in 1854, is chiefly an institution for the maintenance, without supplying means calculated to improve the literary or industrial education of the inmates, or to render them, even in part, self-supporting. St. Mary's Catholic Female Asylum for Industrious Blind, under the care of the Sisters of Charity, was opened at Portobello, in the city of Dublin, in 1858, and is supported by voluntary contributions and sums paid for the support and education of the pauper blind by Poor-law Unions. St. Joseph's Catholic Male Asylum for Industrious Blind, now under the management of the Discalced Carmelites, was opened in 1859, at Glasnevin, in the vicinity of Dublin." Of 357 inmates in the nine asylums, on April 7, 1861, 191 were supported by Poor-law Unions, viz., 2 in the Molyneux, 72 in St. Mary's, 36 in St. Joseph's, and 81 in the Cork Asylum.

Table VI. shows the numbers of the educated and uneducated blind in the Irish workhouses on 7th April, 1861. These amounted to 920, or 75 less than in 1851; and the proportion of blind in workhouses to the general total of that class in the country at large is 1 in 7·48. The educated numbered 329, and the uneducated 591. The greatest number of educated blind was in the following workhouses, viz., Dublin (North and South), Limerick, and Cork.

Table VII. exhibits the ophthalmic diseases registered at St. Mark's Hospital, in this city, from 1st March, 1853, to 30th Sept., 1862. This is set forth in order to institute a comparison with a somewhat similar return given at p. 47 of the *Status of Disease*, 1851. From the present report we find that in 16,019 out of 22,053 instances the *colour* of the eyes was either grey, blue, or blue-grey, the usual Celtic characteristic; the number of hazel and brown amounts to 6,034. The proportion of light to dark is as 100 to 37·67; while in the former investigation the ratio was 100 to 38·36. "Viewed from an ethnological point of view, this question of the colour of the eyes affords some slender means of estimating the proportion of the races that at present occupy the Irish soil."

The diseases noted in Table VII. are, as might be expected, both numerous and various, and are arranged under the following heads:—Affections of the Eyelids and the Lachrymal Apparatus; Ophthalmia and Diseases of the Cornea and Conjunctiva; Diseases of Internal Tunics, Sclerotic, Iris, and Choroid, &c.; Affections of Lens; Diseases of Retina, Optic Nerve, or Brain; and Diseases Unspecified.

Table VIII. shows the causes of blindness, and the ages at which it occurred. This, the first authentic attempt of the kind, has been pursued with most ingenious industry and precision, considering the various non-medical sources from which the information was derived, and the general want of special knowledge in ophthalmic medicine and surgery among the great mass of legally qualified medical practitioners.

The number of blind attributed to small-pox, measles, and scarlatina amounts to 778; and in 725 of these the loss of sight was caused by small-pox. From fever 121 persons are reported as having lost their vision. "Ophthalmia" is used in a very extensive sense, and includes "all cases of acute, chronic, or scrofulous inflammations, or their effects." Here we find an historical account of the epidemic ophthalmia which was rife in Ireland in 1701, 1739, 1758, 1772, 1793, 1801, 1803, 1809, 1811, 1826, 1840, 1844, 1845, 1848, 1849, 1850, and 1851.

In 1851 there were 45,947 cases of it; and in the County of Cork, where it most prevailed, there were then so many as 1,133, or 1 in every 497 of the population. From 1849 to 1852, both inclusive, as many as 118,835 cases occurred in the Irish workhouses alone; and of these 84,136 were under 15 years of age. On the night of 7th April, 1861, in public institutions or in private houses, there were 1,307 cases, of which 999 were in workhouses; the entire number being 2,576 less than was returned for the night of March 30th, 1851. The following is a short analysis of the other items in Table VIII.:—

Internal Rheumatic and Specific Inflammations, .	203
Amaurosis and Chronic Glaucoma, . .	110
Diseases of Brain and Nervous System, . .	322
Injuries of Head and Nervous System, . .	61
Accidents from Mechanical Injury, . .	303
Injuries by Animals, ...	28
Blindness by Chemical Agents and Burns, .	40

Blindness by Explosions of Gunpowder, &c.,	94
Blindness from Lightning,	11
Accidents Unspecified,	78
Cataract,	416
Child-birth,	47
Old Age,	178
Unspecified (not traceable to any reasonable cause),	1,589

With the solitary exception of the medical officer of the Cork Blind Asylum, all other medical officers of such institutions in Ireland replied to a circular asking information as to the original disease of each of the inmates, the age at which it occurred, and the present state of each eye. Among the remote causes of blindness we find noted at length—ophthalmia and granular lids, variability and dampness of climate, and want of special hospitals and asylums for the blind; and we are told that a more or less perfect State provision for these persons exists in Canada, several of the American States, France, Russia, Spain, Austria, Belgium, Hanover, Holland, Berne, Bavaria, Saxony, Sweden, Wurtemberg, Hesse Darmstadt, Baden, and Denmark.

We find that in 6,342 civilians and 150 soldiers blindness occurred at home, and in 49 civilians and 104 soldiers it happened abroad; that under ten years of age most of the persons now blind lost their vision; that in 239 instances there was reason to suspect hereditary blindness; and 215 persons only had become educated after the occurrence of blindness, while a few "were instructed in the classics, modern languages, and the higher branches of education."

This part of the Report derives especial value from the fact of Sir William Wilde having minutely investigated the whole subject for many years past; and also because, with the exception of Norway, which has a ratio of 1 to 540, Ireland possesses the largest number of blind inhabitants (so many as 1 to 843 of her population), a result attributed by Sir William to famine and epidemics. The reader's attention is also specially directed to Table VII., which shows the colours of the eyes in many thousand cases of disease and accident. This is unique, and an ingenious medical curiosity.

Section 3 is a "Report upon the Number and Condition of Lunatics in Ireland." The first attempt at an investigation of this kind in Ireland was made in 1841; but it was necessarily imperfect, as it was obtained from the only sources of information then available, such as lunatic asylums, gaols, hospitals, and workhouses. In 1851

the inquiry was extended to those lunatics who were either at large or in the custody of their friends. No difficulties were thrown in the way of the enumerators, and accordingly this return gave the numbers as, lunatics 1,073, and idiots 3,562. A similar mode of investigation was pursued in the present report; and Table I. of this 3rd Section informs us that the total number of lunatics and idiots in 1861 was 14,098, or 4,118 more than those returned in 1851. This presumed increase is accounted for by the probable deficiency of the returns of 1851 through the novelty of the subject, and the consequent inefficiency of some of the enumerators. The state of the country at that time did not offer facilities for the inquiry; and the then recent famine, pestilence, and reverse of fortune may have induced an undue proportion of insanity. Lunatic asylums, which afforded a wider field of observation, were increased from 33 to 40 during the last decade, and gave accommodation to an additional number of 1,580 inmates. The number was also relatively increased by the exodus of the population, as in the case of deaf mutes and the blind; and so, according to the present Report, the number of lunatics in Ireland on the 7th April, 1861, was 7,065, or an increase of 1,991 over the returns in 1851. Of these 1,602 were at large, or in the custody of friends and guardians, 4,613 were supported in asylums, 273 in prisons, and 577 in workhouses.

The proportion of lunatics to the population was 1 in 633 in Leinster, 1 in 779 in Munster, 1 in 964 in Ulster, and 1 in 1,147 in Connaught. The greatest proportion existed in the Cities of Kilkenny and Limerick, and Dublin County; and the least in Mayo, Galway, Roscommon, and Cavan. There were 30 natives of Great Britain and 12 foreigners in lunatic asylums. The proportion of lunatics to the whole population is 1 in 821, while in 1851 it was reported at 1 in 1,291. "Compared with other countries in Europe and America we learn, on referring to the Table of General Vital Statistics, furnished at pages 32 and 33, that Ireland occupies, together with Nova Scotia, Sweden, and Bavaria, a medium proportion between the high rate of lunacy in Oldenburg, Prince Edward Island, and Denmark, the average of which countries is 1 in 477 of the population; and the proportion of those of Piedmont, Savoy, Holland, and Saxony, where the average ratio is one in every 1,931. In Prussia and Hesse-Darmstadt there are no statistical returns of lunacy; but in the nineteen other countries from which we have procured the information respecting lunatics afforded by that Table—with a total population of no less than

125,827,287, and embracing as great a variety of climate, geographical extent, ethnological character of race, diversity of occupation, and social and moral condition, as it is at the present day possible to obtain—we find that the number of the insane was 121,423, or 1 in every 1,036 of the people of these countries that afforded returns of this class; and that the sexes were in the ratio of 100 males to 106·59 females."

Table I. gives 7,033 idiots, or 2,127 more than in 1851. Of this number 5,675 were "either wanderers, mendicants, or under the care of their friends;" and the proportion of idiots to the population is 1 in 825. There are some remarkable differences in the distribution of these, thus:—In the Cities of Kilkenny, Cork, and Limerick, the proportion of lunacy is high, while that of idiocy is very low.

Table II. shows the religious professions, and exhibits the highest as 10,741 Roman Catholics, and the lowest as "one Jewess."

Table III. shows the occupations of lunatics and idiots. They are classed in ten divisions, and we can only briefly notice them. Class I.—Professional—includes "gentry," and amounts to 313, of whom only 80 are females; being less by 91 than a similar return in 1851 Among these the moral causes are 45, physical 53, and hereditary 61. Among the moral causes, 10 were assigned to reverse of fortune, 8 to religious excitement, and 20 to intemperance. It will be gratifying to our profession to know there are but 5 physicians and surgeons in it, as compared with 13 in 1851. Class II.—Professional with Mercantile Pursuits (*e g.*, apothecaries and druggists)—numbers 38, and reverse of fortune is the predominating cause assigned in this class. Class III.—Literary and Educational—numbers 133, and includes 12 musicians, 52 students, and 69 teachers. Class IV.—Shopkeepers and Traders—numbers 168, or 58 more than in 1851. Class V.—First-class Trades (*e.g.*, workers in wood, clerks, printers, and stationers)—amounts to 181 lunatics. Class VI.—Second-class Trades—to 606. Class VII.—Agricultural—returns 3,080 lunatics. Class VIII.—Occupations Producing Exposure (*e.g.*, cab-drivers, sailors, &c.)—numbers 95 males. Class IX.—Special Female Occupations—amounts to 344, or 124 more than in 1851; and of this number 241 were dressmakers. Class X. —Miscellaneous, such as bath-owners, billiard-markers, mendicants, parish clerks, and sextons, &c.—comprehended 9,140 persons, or 2,278 more than in 1851. In 233 cases intemperance was the cause of disease; in 184 reverse of fortune; in 163 grief; and in

110 religious excitement. Also insanity was in 2 cases induced by political excitement, in 2 by immoderate use of tobacco, and in one by joy.

Table IV. shows the Description of Disease, and its Presumed Cause, in 1,978 lunatics and idiots.

In so many as 14,015 cases the description of disease has been returned; and as to the 1,978 above mentioned, the report states:—"This Table, which contains the presumed causes with the specified forms of disease, is increased in the latter respect by five additional items over that afforded in 1851, a result chiefly attributable to the increase of lunatic asylums, and to the fact that at present the resident officers of nearly all such public or private institutions in Ireland are members of the medical profession." The attention of the reader is drawn to the fact that several idiots and imbeciles were also either dumb, or deaf and dumb; and the idea is thrown out that the too close relationship of parents, as a cause of idiocy and other abnormal peculiarities, is a subject "well worthy of investigation on a future occasion."

The following are some of the statistical results shown as to numbers of cases in Table IV:—Mania, 5,032; monomania, 195; melancholia, 822; dementia, 551; catalepsy, 9; and uncomplicated epilepsy, 279.

Table V. shows the marriage and education state among lunatics, idiots, and epileptics, and only differs from the analagous form in 1851 by the greater subdivision of diseases. Of the total 14,098, 2,775 were or had been married, as many as 5,519 were educated, 8,269 uneducated, and in 310 cases no returns were obtained under this head.

Table VI. "exhibits the Number, Locality, Date of Erection, and Means of Support, together with the Amount of Accommodation of the several Public and Private Asylums for the Insane in Ireland in April, 1861."

All the private asylums are self-supporting; and of the public institutions, the Central Criminal Asylum at Dundrum, and the Lucan Public Asylum are supported by Government grants. The district asylums are supported by their respective counties, and some of them receive pay patients. Swift's Hospital, in this city, has a private endowment, bequeathed by its eminent founder, funded property, and also payments from patients. Taken as a whole the Irish Lunatic Asylums accommodate 5,549 persons, of whom 543 are treated in private asylums. In all these asylums there were,

on the 7th April, 1861, 5,016 persons, or 1,580 more than in 1851.

Several changes have occurred since 1851: thus district asylums have been opened in Killarney, Omagh, Sligo, and Mullingar; the asylums at the House of Industry, in this city and at Lifford, were closed; the asylums at Cork and Kilkenny merged into district establishments; and the inmates of the asylum at Island-bridge were removed to Lucan. Of private asylums that at Cheekpoint, Co. Waterford, and Finglas House, Co. Dublin, have been closed; and new ones opened as follows:—Benvere, Churchtown, Co. Dublin; Dr. Stewart's at Lucan; and Orchardstown House, Rathfarnham; St. Vincent's, Clontarf; Verville, Clontarf; Annareagh, Co. Armagh; and Highfield, near Dublin. The education of idiots and imbeciles is referred to by the reproduction of a strong recommendation on that subject from the *Status of Disease* of 1851.

Table VII. shows the number of lunatics, idiots, and epileptics in the Irish workhouses. There were 577 lunatics and 934 idiots, as shown in Table I; and there were, also, 374 epileptics, who were neither idiotic nor insane, in the workhouses at the time of the Census.

Table VIII. shows the numbers of lunatics, idiots, and epileptics in the Irish prisons. These consisted mainly of persons who had become insane after committal, or of those who were confined as dangerous lunatics or wandering idiots, by magistrates' warrants. The gaols which had the greatest number of such inmates were those at Lifford, Downpatrick, Grangegorman, Clonmel, Nenagh, and Wexford. There were not any of this class in the prisons of Cork County or City, Kerry, Kilkenny County or City, Leitrim, Longford, Meath, Sligo, Tyrone, Waterford, or Westmeath. From Mr. Handcock's return of lunatics and idiots under the Court of Chancery, it appears that 122 persons were so controlled, and either confined in asylums or in the care of guardians or friends. In 1851 there were 108 of this class, of whom 13 were in England, where, also, were 14 of the 122 above mentioned.

On investigation, we think, it will be found that the classification used by Sir William, then Mr. Wilde, in 1841, 1851, and 1861, is the most minute and scientific yet made for the insane; and it is remarkable that it has never been acted on by compilers of statistics of insanity in our own or in any other country.

As to the idiotic, we may just mention that Mr. Jonathan Pim read a paper before the Statistical Society, on the 20th of January

last, in which he advocated "a State provision for the education of the deaf and dumb, the blind, and the imbecile." He thinks there is urgent necessity for institutions for the afflicted classes already referred to, founded and supported on the general principles of our reformatories for youth; and while giving an extended sketch of any now existing, he alludes frequently to Sir William Wilde's Report.

Section 4.—The Lame and Decrepit.—Under this head are included the results of fractures and dislocations of the extremities, various diseases of the joints, spinal affections, loss of the perfect use of the limbs from various morbid causes, and congenital deformities.

Table I. informs us that the lame or decrepit numbered 4,120, or 255 less than in 1851. Of these 3,460 were in workhouses; and of the 3,460, 1,602 were under treatment in hospital. The general and special hospitals (including lunatic asylums) had 225 lame or decrepit inmates, and the prisons, 207. They abounded most in the Cities of Waterford, Kilkenny, and Limerick, Drogheda, and the Counties of King's, Wicklow, Louth, Carlow, Kilkenny, Clare, and Westmeath.

Table II. shows the occupations of 2,609 of the lame and decrepit; 1,216 ministered to food; 374 to clothing; 754 to lodging, furniture, and machinery; 53 to transport and travelling; 40 to literature and education; 11 to amusements; 7 to health; and 31 to justice.

Table III.—Religious Professions—shows that there were of Roman Catholics, 3,574; of Protestants, 534; and 12 of all other persuasions.

Table IV.—the Education and Marriage State—shows that 1,933 were educated, and 2,187 uneducated; while 1,959, out of 4,120, were married.

"The following summary shows the ratio of each class of the permanently diseased to the population, both in 1851 and on the present occasion, so far as the returns, already detailed, have enabled us. By it we perceive that the proportions of the deaf and dumb, the blind, the lame, or decrepit, are nearly the same as in 1851, but that those for the insane and idiotic are vastly increased; not altogether owing to an absolute increase of these two classes of persons, but because our returns are, on the present occasion, more exact:—

1851	1 person in every	1861	1 person in every
Deaf and Dumb, .	. 1,265	Deaf and Dumb, .	. 1,026
Blind, . . .	. 864	Blind, . . .	. 843
Insane, . . .	. 1,291	Insane, . . .	. 821
Idiotic, . . .	. 1,336	Idiotic, . . .	. 825
Lame or Decrepit,	. 1,498	Lame or Decrepit,	. 1,408

"The proportions which the sick of these sections bear to the total of each class are as follows:—Of the 4,794 deaf and dumb, but neither insane, idiotic, nor paralytic, 1 in every 63·08; and of the 6,879 blind, 1 in every 15·46. No fair calculations could be made as regards the proportions of the lunatic, idiotic, or the lame or decrepit, who likewise laboured under temporary sickness at the time of taking the Census."

Section 5.—Reports on the Number and Condition of Paupers in the Workhouses of Ireland on the night of the 7th April, 1861. At the time of the Census of 1851, out of a population of 6,552,385, as many as 250,611 were inmates of workhouses; and of these 42,474 were under hospital treatment, and 22,180 of this 42,474 laboured under epidemic or contagious diseases.

Compared with this, we find that in 1861 the workhouses and workhouse hospitals contained 50,010 persons, or 1 in every 116 of the population, while in 1851 1 in 26 of the entire community were in the receipt of *in-door* Poor-law relief. In 1851 there were 508 workhouses of all kinds, and 21 hospital institutions in which paupers were accommodated; while in 1861 we find only 165 of every sort; and 32 persons under treatment, and paid for by their respective unions, in certain fever hospitals.

Table I. shows the population in 1851 and 1861, the number of healthy and sick persons receiving Poor-law relief, and their proportion to the unaided portion of the community in 1861.

"In 1851 the proportion of inmates of workhouses to the population was as high as 1 in 9 in the County of Kerry, and 1 in 11 in Clare; whereas, according to the present returns, it was only 1 in 85 in the latter, and 1 in 111 in the former locality. In 1861 the greatest proportion of workhouse inmates, 1 in 47, existed in the City of Kilkenny, and next to that in the City of Limerick, 1 in 48; in Tipperary County it was 1 in 74; in Kilkenny, 1 in 79; in Limerick, 1 in 80; Waterford, 1 in 83; and Clare, 1 in 85. The least ratio of pauperism, 1 in 301, occurred in Donegal; in Down it was 1 in 238; in Tyrone, 1 in 236; Leitrim, 1 in 212; and in Monaghan, 1 in 208."

Table II. shows the difference in the population where the boundaries of Poor-law Unions are not identical with those of the counties, cities, or towns in which they are situated. Thus the greatest difference exists in this city, where the North and South Unions embrace the whole of the civic and suburban population; and in the County of Kerry all the unions are within the boundary of the county, except that of Glin, the workhouse of which is in the County of Limerick. "The portion of Glin Union within the County of Kerry has a population of 4,714 persons, which has been included with the County of Limerick."

The sexes of inmates of workhouses were, males, 20,089; females, 29,921, or 67·13 males to 100 females.

In 1851, 3,653 persons were receiving out-door relief; in 1861 the number was 4,628.

In 1851 the total amount of workhouse accommodation was 308,845; in 1861 it was 161,584.

In 1851 there were 42,474 sick paupers (or 1 in 5·9 for the entire kingdom) in hospital, as compared with 16,730 (or 1 in 3) in 1861.

This increase is explained by numbers having sought medical relief who were not destitue, but who were unable to support themselves in ill health.

Table III. shows the different fever hospitals which gave Poor-law accommodation in 1861, when 32 paupers were under treatment, as compared with 890 in 1851. The hospitals are those of Carlow, Kilkenny, Freshford, Thomastown, Montrath, and Campile.

Table IV. shows the numbers of paupers in workhouses in 1861; distinguishing the sick from the healthy; and giving the proportion of paupers to the population.

In 1851 the amount of pauperism in the best circumstanced county or city was 1 in 193, and in the worst 1 in 9.

Six of the best counties or cities are contrasted with six of the worst; and from this contrast Donegal County appears as having 1 pauper in 301 of the population; and is so better than Down, Tyrone, Leitrim, Monaghan, and Londonderry; while Kilkenny City has 1 in 47; and is the worst of Limerick City, Waterford City, Drogheda Town, Cork City, and Tipperary Co.

Fifteen of the best are contrasted with 15 of the worst circumstanced unions; the best, Dunfanaghy, has 1 in 423; and the worst, Clonmel, has 1 in 36.

In 1851 the best union had one workhouse inmate for every 200 of the population; and in 1861 but 1 in 423.

In 1851 the greatest pauperism in any union was 1 in 7; and in 1861 1 in 36.

Table V.—Religious Professions—shows 6,537 Protestants, as compared with 43,473 Roman Catholics.

Table VI.—Education and Marriage State.—There were 21,805 educated, and 28,205 uneducated.

Of the former 9,359 could "read only," and 12,446 could "read and write;" "35,972 persons—14,467 males, and 21,505 females—were unmarried, and 14,038 were, or had been, married."

Table VII. shows the occupations of 26,597 out of 50,010 inmates of workhouses. 2,560 had ministered to food; and among these 385 had been farmers or landed proprietors; 3,176 ministered to clothing, and 10,843 to lodging, furniture, and machinery; 255 ministered to conveyance and travelling, 2 to banking or agency, 246 to literature and education, 4 to religion, 7 to charity, and 23 to health; 196 ministered to justice and government, 38 to amusement, 2 had been opticians, and 2 engravers. Of our own profession—returned under the head Ministering to Health—we find 3 physicians and 1 apothecary; the law is represented by one attorney; and those who ministered to religion were 3 Scripture-readers, and one of that time-honoured class—the sextons; 3,072 are returned as beggars, and 206 as prostitutes. Of the 50,010 inmates, 16,761 were in the workhouse hospitals; giving a proportion of 1 sick in every 3 of the inmates.

Table VIII. exhibits a classified return of the diseases of these 16,761 persons, and very properly follows the classification of 1851, discarding the novelties of medical statists as unfavourable to comparison The sexes were males 7,101, and females 9,660, or 100 females to 73·51 males; while in 1851 the proportion was 100 females to 84·05 males.

In 1851 the greatest number of sick were under 10 years of age, and from 10 to 20; while in 1861 they were from 1 to 10, and from 60 to 70. Many parturient women, and persons labouring under trifling diseases and infirmities, are included amongst the inmates of workhouse hospitals, and so add greatly to the numbers, which cannot be compared with the patients in general hospitals. In 1851 22,180, or 1 in 1·91 of the total sick, laboured under epidemic, endemic, or contagious diseases; in 1861 the numbers of this class are only 3,388, or 1 in 4·95 of the sick. In 1851 7,888 laboured under fever; in 1861 only 862. Those affected with ophthalmia formed the largest class, and amounted to 999 in 1861,

town; and the Spinning Mill Hospital at Dunbarton, County as compared with 3,465 in 1851. In 1851 8,278 were affected with dysentery or diarrhea; in 1861 only 661. Some of the others may be shortly set down thus:—

	1851	1861
Small Pox,	516	22
Measles,	457	185
Syphilis,	542	210
Ague,	38	14
Pemphigus (Hibernicè, "the mortifying hive"),	4	0
Paralysis,	286	562
Heart Diseases,	118	146
Diseases of Lungs and Air Passages,	3,329	2,323
Diseases of Digestive Organs,	1,605	1,046
Urinary Diseases,	61	101
Diseases of Generative Organs,	258	270
Skin Diseases,	6,014	1,838
Accidents,	221	236

The report attributes the increased number returned under Urinary Diseases "more to improved methods of diagnosis on the part of the workhouse medical attendants, and also to greater care in filling the returns in 1861, than to any absolute increase of urinary affections." It is to be feared that at the close of the decade 1871 the numbers returned under fever, small-pox, and measles, will be much higher than in 1851, as they have prevailed epidemically in 1862 and 1863; the same remark applies to scarlatina, of which only 34 cases are returned in 1861, while in 1862 and 1863 it has also prevailed epidemically.

Section 6 reports on the Number and Condition of the Sick in Public Hospitals for the *Temporary* Reception and Treatment of Accidents or Diseases.

In the Report on the *Status of Disease* for 1851 the various general and special hospitals in Ireland are described with minuteness and ability. This is not repeated in the present report, but from Table I.—which is analagous to a similar one in 1851—the following comparisons may be drawn:—In 1851 the infirmaries numbered 36; in 1861—caused by the closure of that at Mallow in 1852—they numbered 35. The general hospitals—15 in 1851—have been increased to 19 by the addition of the Pension Medicale and the Adelaide Hospital in this city; the Mercy Hospital in Cork; the General—formerly the old Fever Hospital—at Queens-

Down. The Maison de Santé in this city was closed in 1858; and, although outside the subject, it may be noted that the Mater Misericordiæ Hospital in this city was not opened until after the Census of 1861. The ordinary fever hospitals are reduced from 61 to 39; "and of those 15 which were open under the provisions of the Act 6 and 7 Vic., cap. 92, sec. 15, on the night of the 30th March, 1851, none existed in 1861." Two special hospitals—the Westmoreland Lock and St. Mark's Ophthalmic in this city, remain; but in St. Mark's the beds have been increased from 20 to 30. A portion of the City of Dublin Hospital is also devoted to ophthalmic purposes. There were 9 lying-in hospitals in 1851; in 1861 there were 7; the Anglesey in this city, and that at Youghal having been closed. The total of hospital accommodation—excluding asylums and workhouses—was 7,972, or 1 to 787 of the population unprovided with indoor medical relief of a charitable kind in 1851. In 1861 this was reduced to 6,378, or 1 to 899 of the above class. As in some instances the returns stated the number of beds, and not the amount of accommodation capable of being given in a stated time, there is a difference between the stated amount of accommodation and the actual number of inmates. On March 30, 1851, the number of patients was 3,839; in 1861 it was 1,716, or 846 less than in 1851.

Table II. shows the Marriage and Education state of these patients, of 2,993 of whom 1,424 could read and write, 612 could read only, and 957, or 31·97 per cent. of the total were wholly illiterate.

Table III. shows the Occupations of the patients.

The largest number is that of persons who are described under the heading Lodging, Furniture and Machinery; these amounted to 713. There were 558 domestic servants, 32 carpenters, 17 house-painters, 11 stone-masons, and 9 blacksmiths. 345 ministered to food, 250 to clothing, 123 (mostly policemen) to justice, 66 to literature and education, 89 to conveyance and travelling, 10 to health, 3 to amusement, and 1 to charity. Among these were 2 physicians and 2 barristers; and the 3 who ministered to amusement are returned in detail as 1 fiddler, 1 piper, and 1 huntsman.

Table IV. shows the religious professions of 2,993 patients. The most numerous were the Roman Catholics, who numbered 2,389; and the least numerous were the Jews, who numbered 2. A comparative view of the Roman Catholics and Protestants gives 2,389 of the former to 602 of the latter.

Table V. is a nosological return of the hospital patients. Among the zymotic class we find 245 fever cases, 236 of which were in fever hospitals. In 1851, out of 3,839, there were 1,107 fever cases. The next most numerous in this class are ophthalmic diseases, which numbered 147, or 11 less than in 1851. Syphilitics had decreased from 204 to 140. Small-pox, 8 (same as in 1851). Measles and scarlatina, of which there were 5 in 1851, now amounted to 26—15 of the former and 11 of the latter. Diseases of the brain, nervous system, and organs of sense, numbered 107 in 1851, and 154 in in 1861. Some of the rest may be shortly stated thus:—

	1851	1861
Circulating Organs, . .	42	73
Respiratory Organs, . .	270	344
Digestive Organs, . .	217	187
Urinary Organs, . .	55	60
Generative Organs, . .	117	92
Locomotive Organs, . .	611	624
Tegumentary Organs, . .	332	316
Accidents, . . .	165	173

56 of these patients were aged under 5 years; 96 from 5 to 10; 746 from 10 to 20; 1,228 from 20 to 40; 582 from 40 to 60; 250 from 60 to 80; and 21 upwards of 80 years.

Section 7 reports on the asylums and other charitable institutions for the *permanent* residence of the distressed, sick, aged, or infirm.

In chronological order these date from 1499—when St. Canice's Alms House, in Kilkenny, was established—to 1859; they number 92, are capable of accommodating 2,510 persons, and are situated in the city and suburbs of Dublin, the cities of Kilkenny, Cork, Limerick, and Waterford; the towns of Belfast and Londonderry; and the counties of Meath, Westmeath, Cork, and Down. Table I. gives the names, localities, dates of erection, amount of accommodation, and numbers of inmates of all of these: 47 of them are in this city or suburbs; 16 in the city of Waterford, and 11 in the city and suburbs of Cork.

Table II. shows the occupations of 2,087 inmates: 53 ministered to food; 587 to clothing; 254 to lodging, furniture, and machinery; 20 to conveyance and travelling; 28 to literature and education; 1 to amusement; 8 to health; and 137 to justice. Of the whole number, 123 pensioners of the Kilmainham Hospital are included in the 137 who ministered to justice. There was 1 physician, 1

barrister, and 10 gentlemen. 223 were aged under 20; and from 60 to 90, and upwards, the numbers are 1,017.

Table III.—Religious Professions—gives 979 Roman Catholics; 933 Established Church; 132 Presbyterians; 35 Methodists; 6 Independents; and 2 of other persuasions.

Table IV.—Education and Marriage State—shows that 1,272 could read and write; 495 could read only; and 320 were wholly illiterate: 952 were or had been married; and 1,135 were celibates.

Section 8 reports on the number and condition of the inmates of prisons, bridewells, convict depots, and Reformatories in Ireland.

Here a manifest improvement appears since last report; and it is only second to the change for the better in the state of the workhouses since 1851. In that year the number of prisoners was 15,609; of whom 577 were debtors; 286 dangerous lunatics, or idiots; 2,300 untried, and 12,446 convicted; or 1 to 526 of the population.

Table I.—which, unlike that in 1851, separates Belfast and Galway from their respective counties, distributes the prisoners in convict depots and reformatories to their own localities, and gives the proportion of the convicted to the population for each locality—gives the total in 1861 as 4,702, or 3,166 males and 1,536 females, against 15,609 in 1851; there were 183—170 males and 13 females confined for debt, as compared with 577 in 1851. The untried numbered 374, against 2,300 in 1851; and the lunatics, idiots, and epileptics, amounted to 299, as compared with 286 in 1851.

The Reformatory laws having come into operation in 1858, Table II. gives the numbers in 6 convict depots and 8 reformatories. These amount in the former to 1,413, and in the latter to 446; and we are informed that "according to the present improved prison system, all gaols, especially convict prisons and reformatories—the latter in particular—are not only correctional, but educational institutions." The number of convicted stands apparently high—as persons who, under the old system, would have been imprisoned for a short time, are now sent for years to reformatories. On the other hand, it should be borne in mind, we think, that a juvenile pickpocket, by spending five years at a reformatory, reduces the number of convictions by at least 10 per annum; as if set at large, he would probably have been convicted over and over again, and each conviction reckoned as a separate case. This remark also applies to confirmed drunkards, who form a large number of convicted prisoners; so that if an analysis were made of 100 cases of conviction

for inebriety during three months, the inquirer would soon get familiar with well-known names and characters.

The provincial proportion of criminals to population in 1861 is as follows:—Connaught, 1 in 2,702; Ulster, 1 in 2,239; Munster, 1 in 1,373; and Leinster, 1 in 940.

Connaught is reported as holding "the first rank in immunity from detected crime." Sligo holds the first place, and Dublin the last, as regards freedom from crime; and the localities in which the most manifest improvement has taken place, since 1851, are the Counties of Kerry, Galway, Meath, Queen's, Sligo, and Antrim.

It were well if some inquiry were made as to the vital statistics of the sanitary and mental condition of convicts, as resulting from their very hopeful position. By this we mean any record of how much bread, meat, porter, pudding, and other good things they get; how many hours they labour during the day, and the amount of work done, as compared with the working hours and work done by honest *adscripti glebæ;* how much clothing, good housing, cleanliness, and amusement is inflicted on these wayward children by a paternal Government; in fact, how much inducement is held out to the honest man to become a rogue.

Table III. shows the education and marriage state of these prisoners aforesaid. Of 4,702, 3,494 were educated, and 1,208 uneducated. Of the former, 2,528 could read and write, and 966 could read only. "The disproportion of the sexes of those who 'read and write' is remarkable—the males being 2,097, and the females only 431."

Table IV.—Religious Professions—shows the following numbers:—Roman Catholics, 3,960; Established Church, 591; Presbyterians, 144; 2 Quakers; 1 Independent; 1 Methodist; and 3 of "all other persuasions." Of the convicted, 3,251 were Roman Catholics, and 591 Protestants.

Table V. shows the occupations of the prisoners: 777 had ministered to food; 508 to clothing; 572 to lodging, furniture, and machinery; 122 to conveyance and travelling; 6 (commercial travellers) to banking and agency; and 55 to literature and education. We are sorry to find as "ministering to religion," 1 clergyman of the Established Church, and one Roman Catholic clerical student; also 2 surgeons, 2 barristers, 7 attorneys and solicitors, and 1 officer in the army.

From Table V. we also learn that 216 were aged from 5 to 15;

792 from 15 to 20; 2,107 from 20 to 30; 1,222 from 30 to 50; and 361 from 50 to 85.

Table VI. shows the number and diseases of the sick in prison hospitals: 461, or 1 in 10 of the inmates were under treatment; while in 1851 the ratio was 1 in 15. Of the 461, 30 laboured under epidemic or contagious diseases. Some of the others may be set down thus:—

Diseases of Brain and Nervous System,	305
Diseases of Circulating Organs,	4
Diseases of Respiratory Organs,	21
Diseases of Digestive Organs,	14
Diseases of Urinary Organs,	1
Diseases of Locomotive Organs,	12
Diseases of Tegumentary System,	23
Childbed,	7
Accidents,	9

If all these gentry had been formed into a rogues' brigade, and sent into the trenches before Düppel, or subjected to Prussian tender mercies elsewhere, we might not wonder at the sick in hospital being reported as 1 in 10; but so large a proportion of sick in our quiet prisons at home, with protection from wind and weather, warm clothing, wholesome food, plenty of cleanliness and idleness, a little moderate exercise, and good medical attendance, forcibly suggests some queries to the medical reader. Are the prisons unfit for habitation, as in the days of Howard? Are the clothing and food insufficient or of bad quality, as at the Crimea? How much or how little illness secures a remission of that terrible judicial sentence, "hard labour"? To what extent does malingering prevail in our prisons? and what sort of pigmies are the natives of the various localities robbed, burned, or otherwise injured by this decrepit set of prisoners?

Section 9 reports on the number of sick at their own homes, and gives a summary of the total number labouring under permanent or temporary diseases. For the first time in the history of this country, an approximation to the total number of sick in Ireland was made at the Census of 1851, by obtaining information from private houses. In reply to this inquiry—which was met with public spirit—it was found that 32,977, or 1 in 190, were sick at home, and unable to follow their ordinary avocations. Table I. of this Section gives a similar return for 1861, and informs us that 28,193, or 1 in 203 of

the community not elsewhere provided for, were sick at home on 7th April, 1861. Of the 28,193, 26,699 were unable, and 1,494 were able to follow their usual occupations; and their religious professions are given in Parts IV. and V. of the present Census Reports.

It is well to refer the reader to a nosological table for analogous diseases, popular, provincial, or local names and expressions, "amounting to as many as 450, and also 125 Irish names" in the *Status of Disease* for 1851. This is not republished in the present report, but it is only common justice to Sir William Wilde to refer to it.

Table II. gives the general summary already noted. The following is a short analysis of its principal features—the diseases under each class being placed according to numerical amount, the highest first:—

Total of epidemic diseases, 34,998, 1 in 3 of all the sick. Thus of some in detail:—

	1851	1861
Fever,	13,777	2,350
Influenza,	—	2,330
Measles,	1,035	1,308
Ophthalmia,	3,883	1,307
Diarrhea, Dysentery,	(6,716 & 3,013 =) 9,729	(659 & 480 =) 1,139
Syphilis,	824	370
Scarlatina,	324	266
Erysipelas,	256	228
Hooping Cough,	359	153
Small-pox,	888	116

Sporadic diseases amounted, in 1851, to 24,522, or 1 in 4 of the total sick; while in 1861 the numbers were, 28,939, or 1 in 3. Some of them may thus be stated:—

	1851	1861
Insanity	5,064	7,056
Idiocy,	4,848	7,011
Blindness,	7,284	6,566
Deaf Dumbness,	4,337	5,002
Paralysis,	1,375	1,654
Epilepsy,	856	578
Nervous Diseases,	42	319

Diseases of Circulating Organs numbered, in 1851, 534, or 1 in 196 of the sick; in 1861 they were 922, or 1 in 82. Thus of some:—

	1851	1861
Heart Disease,	365	780
Hemorrhage,	—	56

Diseases of Respiratory Organs:—

	1851	1861
Consumption,	4,182	2,650
Pneumonia,	2,504	2,313
Bronchitis,	1,480	1,860
Asthma,	1,129	1,177
Cynanche,	80	176
Emphysema and Empyema,	—	12 and 13

Diseases of Digestive Organs:—

	1851	1861
Dropsy,	1,464	952
Dyspepsia,	—	526
Disease of Stomach,	384	526
Disease of Liver,	507	510
Marasmus,	747	275
Worms,	—	259
Colic,	—	139
Diseases of Intestines,	—	127
Hemorrhoids,	—	89
Gastric Fever,	53	93
Inflammation of the Bowels,	—	58

Other diseases may be thus stated for 1861:—Stone, 68; disease of kidneys, 40; diabetes, 39; bladder affection, 33; stricture, 26; cancer uteri, 42; ovarian disease, 8; rheumatism, 4,103; fracture, 513; dislocation, 350; spinal diseases, 347; hip affections, 194; amputations, 58; skin diseases, 2,810; scrofula, 1,615; cancer, 353; gout, 73; accidents, 1,223; cold and starvation, 6 (191 in 1851). These diseases are given in full detail in the Appendix, which extends from p. 142 to p. 159, and with an excellent index, winds up this elaborate and invaluable Report.

In the *Status of Disease* for 1851 reference is made to potato diet as a chief cause of ascites, which then largely prevailed in the country districts.

On the same subject the present Report remarks:—"This decrease in dropsy" (from 1,464 to 952), "not dependent on organic disease, may, we think, be in part attributed to the alteration in the diet of the great bulk of the Irish people from potatoes to Indian meal or other cereal food, as well as the decrease in chest affections is probably owing to the acknowledged improvement in the lodging and clothing of the lower classes."

Sir William Wilde's Classification of Fatal Diseases of 1841 was enlarged in 1851 for general diseases, and so became, in fact, a national nosology. For a full view of this most important medical and literary work the reader is referred to the *Status of Disease* for 1851. It has the great merit of being very simple, and derives much of its importance from the facts that popular medical synonyms in Ireland differ widely from those in the sister country; that a knowledge of the Irish language and ancient Irish *medical* literature was essential to the success of the attempt; and that Sir William Wilde, from his medical learning, and his knowledge of the antiquities of his own country, contrived, by the aid of Curry and O'Donovan—both now, alas! no more—to make a most felicitous success. The man who published (in the *Edinburgh Medical and Surgical Journal*) his "Essay on Popular Superstitions Connected with Midwifery," and who also interested the public by his "Popular Superstitions of the Irish Peasantry," was eminently calculated to effect this object; and it is to be hoped that he will not retire from his medico-literary labours until he has written and published a Medical History of Ireland from the earliest to the present time.

On Rupture—Inguinal, Crural, and Umbilical; the Anatomy, Pathology, Diagnosis, Cause, and Prevention; with New Methods of Effecting a Radical and Permanent Cure; embodying the Jacksonian Prize Essay of the Royal College of Surgeons, London, for 1861. With numerous illustrations. By John Wood, F. R. C. S., Eng.; (Exam.), Demonstrator of Anatomy at King's College, London; Assistant Surgeon to King's College Hospital; Surgeon to the Lincoln's Inn Dispensary. London: R. Hardwicke. 1863. 8vo., pp. 326.

When we call to mind the statistical fact ascertained by Malgaigne, that in France one man in thirteen and one woman in

fifty-two are ruptured; and that this estimate may probably be extended, with little variation, to other civilized populations, we are compelled at once to admit that there are few subjects more interesting in relation to practical surgery than that which forms the theme of Mr. Wood's book. When, moreover, we reflect further, and remember the positive dangers to which ruptured persons are at all times liable, and the inconveniences and disabilities which are inseparable from their condition, we cannot deny that, Humanity owes a large debt of gratitude to those who have laboured in search of means to remedy this sad infirmity. To none, however, is more due than to our author, who, having devoted years of successful labour and all the resources of his talent and ingenuity to this good end, now brings before the profession at large the matured results of his valuable experience.

The essay now under notice most unquestionably belongs to the highest class of medical literature; and in systematic arrangement, exhaustive detail, perspicuity, and thorough candour, may be looked upon as a model. The importance of its subject is so great that we are disposed to believe our readers would scarcely be satisfied by a mere passing notice, and therefore we shall lay before them an analysis of Mr. Wood's treatise.

In the introduction Mr. Wood discusses very fully, and, on the whole, very dispassionately, the grand question, namely, whether is an operation for the radical cure of hernia justifiable and worthy of adoption, or not? Two striking objections are commonly urged against the proceeding, viz., the danger to life and the chance of failure. To both our author replies by reference to his statistics, which prove—first, that in sixty cases there has been but one death; and this having occurred from pyemia, three weeks after the operation, cannot be specially urged as an objection to this more than to any other operation whatsoever; and secondly, that out of those sixty cases forty-two were perfectly cured, six remained in a doubtful condition, and in eleven the hernia returned. On the whole, we are safe in observing, that in few operations does the risk appear so moderate and the prospect of success so encouraging.

In these prefatory observations Mr. Wood considers at length and combats theoretical objections, and on the whole makes a very able defence of his operation for the radical cure of hernia; nevertheless, we own candidly, that in our opinion, the measure is one which should never be undertaken unless under circumstances of real necessity, and after a patient trial of other means of relief.

So long as a well adjusted truss suffices to keep up the rupture, and that the inconveniences of the ailment are not everwhelmingly injurious to the prospects of the individual, we hold it to be the duty of the surgeon to dissuade his patient from seeking to undergo the operation; and for our part, we should refuse to perform it. Moreover, we are fully convinced that the general professional knowledge of trusses, and of their adaptation to particular instances, much needs improvement, and is capable of repaying attention. We have repeatedly met with cases where numberless instruments have been tried, and failed, simply from a deficiency of knowledge on the part of those attempting to apply them. It is too much the custom with surgeons, when consulted by ruptured patients, merely to refer them to an instrument maker, and leave the rest in his hands. Yet we cannot deny, that however ingenious and painstaking, as a class, surgical mechanicians may be, few, if any, possess the least scientific anatomical knowledge of the subject, and consequently are fitted to meet a case of difficulty. We should not venture to put forward this hint were we not able, even in our own experience, to lay our hands on numerous instances illustrative of our observation.

The main body of Mr. Wood's essay is divided into three parts, treating respectively of inguinal, femoral, and umbilical hernia. The first part treats of inguinal rupture, the variety most interesting with reference to radical cure, inasmuch as it is the most common in occurrence—the most frequent in men engaged in laborious occupations, and therefore requiring treatment—and the form best circumstanced for the operation. In the first three sections of this part the anatomy, causes, pathology, and diagnosis of inguinal hernia, are ably and elaborately discussed. We do not hesitate to assert that the manner in which these points are handled is quite masterly and unexcelled by any author whose works we have met. We strongly recommend the study of these chapters to all requiring an exhaustive treatise on the subject, but we shall not ourselves attempt an analysis, as such a course would exceed the scope and requirements of this notice.

The Fourth section is devoted to the history of the radical cure, and traces the principal methods from the earliest times down to the present—from the actual and potential cautery of the ancients, through the various milder proceedings subsequently introduced—the excision of the sac and testis practised by Celsus—the strangulation of the neck of the sac and spermatic cord adopted by Paulus

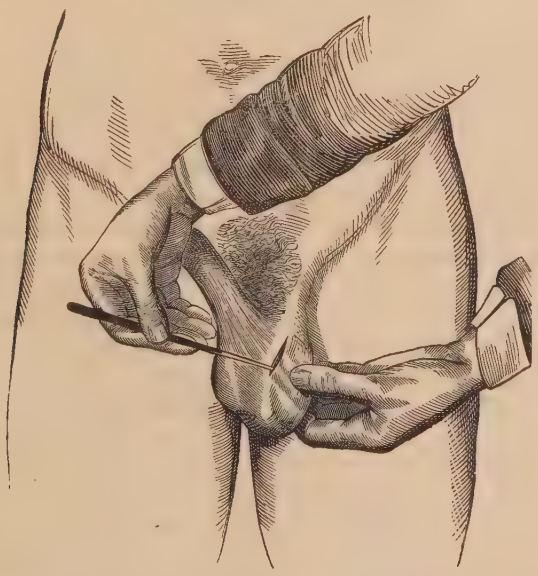
Egineta—the "royal stitch" or sewing up of the sack—the "punctum aureum" of Ambrose Paré, which differed from the method of Galen in the ligature being so moderately tightened as merely to agglutinate the neck of the sac to the cord without injury to the latter—the modifications of this method introduced by Langenbeck and Schmucher in Germany, Acrel, Arnaud, and Petit, in France; and Abernethy and Sharp, in England.

From these more obsolete, dangerous, and useless operations our author passes to the description of others more modern, but scarcely more eligible, namely, the various modes of irritating, and thus closing the sac, used by Schuh, Riggs, Belmas, Bonnet, Velpeau, Pancoast, and others. A moment's reflection shows that all these proceedings, not alone incur much danger by violently irritating the sac, and possibly the adjacent peritoneum, but, moreover, without exception, are *useless*, as they *affect the sac alone* without closing the inguinal canal; thus, at best, merely converting a scrotal rupture into a bubonocele, which, soon again expanding, attains its original dimensions and position. Our author next proceeds to relate how Gerdy, recognising the elements of failure in all the above proceedings, years ago devised his method of invaginating the soft parts covering the rupture into the canal, and then stitching them up there; and how others modified his design, especially Signoroni, Wutzer, Syme, and Agnew, but all with very partial success; and for this reason, that the plug of soft parts rarely adhered effectually all round its circumference, and consequently left an opening which soon dilated again; the distension of the canal, produced by the invagination of the soft parts, rather favouring than otherwise the laxity of the region, and predisposition to rupture. Warned and profiting by the failure of his predecessors, Mr. Wood contrived his operations, which we shall now proceed to detail, and which, it may be observed, are all based upon the same principle, namely, the stitching or pinning together subcutaneously the hernial orifices and the walls of the hernial canal in their entire length, and the excitation thereby of a sufficient degree of inflammation to produce exudation, and finally consolidation of the approximated parts. We shall first describe our author's operation for inguinal hernia, as originally practised by him with ligature thread and compress. So far as may be consistent with the brevity of this review, we shall adopt Mr. Wood's language, and here gladly take the opportunity of acknowledging our obligations to him for the liberality with which he has placed his valuable illustrations at our command.

The instruments required for this proceeding are—a strong Liston's needle, a small tenotomy knife, a compress, made of box-wood, glass, or porcelain—and a stout hempen ligature.

"The pubis and scrotum of the affected side being cleanly shaved, the patient is laid upon his back with the shoulders well raised. The surgeon will find it most convenient to stand on the side to be operated on, and to use for the purpose of invagination the forefinger of the right hand for the right side of the patient, and *vice versa*. Chloroform having been *fully* administered and the rupture carefully and completely reduced, the finger is first passed into the canal by invaginating the scrotum pretty low down, to ensure a complete absence of the viscera from the sac, and to investigate the boundaries and peculiarities of the hernial passage. If the patient have a tendency to cough or struggle, or the hernia is easily protruded, an assistant must carefully command, by pressure, the internal opening during the preliminary incisions.

Fig. 22.

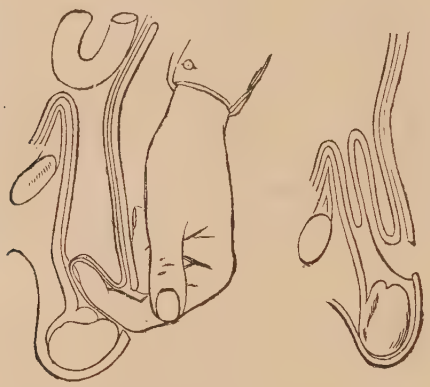


"*The Operation.*—An incision is first made in the skin of the scrotum, over the fundus of the sac if the rupture be large, and a little below it if small. The most convenient direction of the incision for the future steps of the operation is obliquely downwards and outwards, terminating a little on the outer side of the scrotum. It should be long enough to admit easily the point of the finger with the needle in addition. (Fig. 22.)

Then the knife, being insinuated flatwise between the skin and fascia for about an inch, is to be carried round the edges of the incision, so as to separate the former from the latter over an area of at least two inches in diameter.

"Next, the knees of the patient should be brought together and bent up so as to relax the structures in the groin.

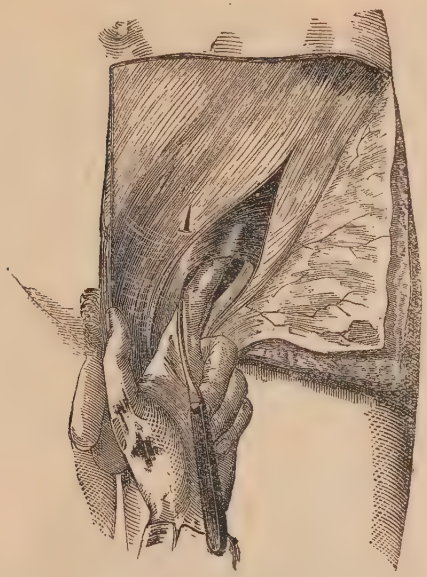
Fig. 23.



"The operator's forefinger is then passed, with the nail directed backwards, into the scrotal aperture, and made to invaginate the detached fascia into the inguinal canal. This invagination should be commenced at as low a point as possible, so as to force the finger as much as may be behind the hernial sac, between its fundus and the spermatic cord. The latter may, at this time, be steadied by an assistant making gentle traction upon the testis. (Fig. 23.) The invaginating finger should be made to reach as high as possible in the canal, towards its superior opening. The position of the cord and of Poupart's ligament should then be distinctly made out. Then, by hooking forward the finger well towards the surface, the lower border of the internal oblique muscle will be felt raised upon it. By directing the finger inwards, the operator will now feel at its thumb side the edge of the conjoined tendon raised with the muscle, and placed in relief on the posterior wall of the canal.

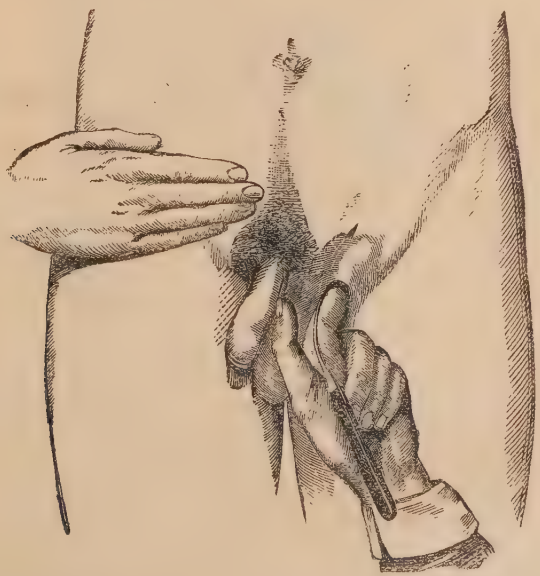
"The needle, unarmed and well oiled, is then passed along the same side of the finger, and pushed through the tendon at its most salient part, so as to take up a considerable portion of it. (Fig. 24.) It is then turned towards the surface, traversing the internal pillar of the superficial ring obliquely upwards and inwards, till the point is seen to raise the skin of the groin. In these manœuvres the point of the needle should be carefully preceded and covered by that of the finger. The skin is then drawn

Fig. 24.



"[In this and many of the succeeding figures the skin and fascia are represented turned aside, to show the disposition of the invaginating finger and instruments, in the various steps of the operation. This takes place in the operation under these tissues, by the guidance of the sense of touch and out of sight of the operator, as seen in Fig. 25.]

Fig. 25.

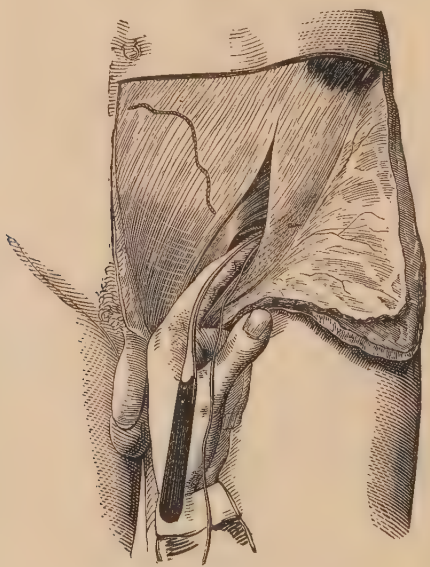


inwards and a little upwards, as much as its deep attachments will allow, and the needle pushed through it. (Fig. 25.)

"One end of the thread is then connected with the needle, and the latter withdrawn with a quick motion, leaving the other end in the puncture.

"The invaginating finger is then placed behind the external pillar of the superficial ring, as close as possible to Poupart's ligament, opposite the internal hernial opening, in the groove which is there found between the spermatic cord and the ligament. The finger being again raised towards the surface, the aponeurosis is stretched well upon it. (Fig. 26.) The needle carrying the ligature is then passed along the finger between it and Poupart's ligament, and pushed through the latter opposite to the point of the former. When its point is seen to raise the skin, the latter is drawn outwards, until the needle can be pushed a second time through the puncture before made. A loop of the thread is then left in the puncture, and the needle withdrawn, carrying the free end.

Fig. 26.



"The finger is next placed on the inner side of the spermatic cord, just above the pubic spine, and pressed firmly upon the conjoined tendon, pushing it backwards and the cord outwards, so as to feel prominently the border of the rectus tendon. Into the tendinous layer of the *triangular aponeurosis* covering this part of the rectus, the needle is then thrust, so as to take up obliquely a considerable portion of that structure as near as possible to the pubic spine, which affords a good guide to the proper place for the puncture. (Fig. 27.) The point of the needle is then

turned obliquely upwards towards the surface, and the skin drawn downwards and inwards over it, until it can be passed through the puncture for the third time. The needle is then freed altogether from the thread, and withdrawn. The whole of the ligature thread is now found in the upper puncture, presenting two ends and an intermediate loop. The

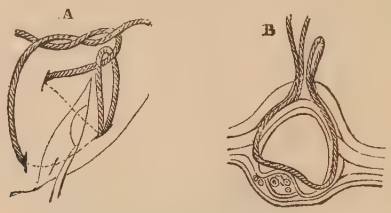
Fig. 27.

upper end encloses the conjoined tendon and the internal pillar of the superficial ring; the loop passes through the outer pillar, close to the centre of Poupart's ligament; and the lower end through the triangular aponeurosis and the insertion of the internal pillar low down. Two portions of thread are thus placed across the hernial canal, invaginated fascia, and sac, closely embracing, but not including, the spermatic cord, and connecting the posterior or deep wall with the anterior or superficial (Fig. 28), perforating the aponeurosis in three places, as seen in A; but escaping by the same aperture in the skin, as seen in transverse section in B.

"The compress, or pad, is then applied over the canal in an oblique direction, with its centre opposite to the threads as they emerge from the groin puncture. The two ends of the thread are drawn over to the outer side, and the loop to the inner, the latter crossing between the former. (Fig. 29 B.) One end of the thread is then passed over the

compress and through the loop, and tied back to the other end in a loop knot or bunch (A).

Fig. 28.

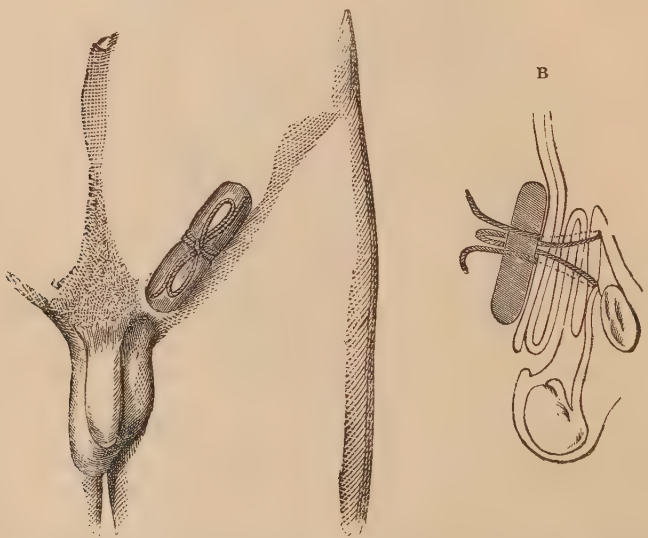


"When the thread is tightened up, direct evidence of its action upon the canal and rings can be obtained by the finger. The posterior wall of the canal should be ascertained to be drawn forward by the ligature, and the pillars of the superficial ring closed in.

"Pledgets of dry lint are then placed at the sides of the compress, and a fold of linen retained by a spica bandage over all.

"The patient should be placed in bed with his shoulders well raised, and a bolster under his knees to keep the groin structure relaxed.

Fig. 29.



"If the pressure were much complained of, the spica bandage was removed the next day. In small cases, or when much thickening and consolidation were quickly apparent about the canal, the ligature thread was untied, and the compress removed on the third or fourth day. In other cases it was kept on till the sixth or seventh day."

Latterly, finding that the early suppuration caused by the hempen ligature occasionally proved unfavourable to the consolidating process, Mr. Wood has adopted, and with markedly satisfactory results, wire in the place of thread. His mode of using the wire is as follows:—

"*The Operation.*—The patient and surgeon being placed in the position described in the first operation, the same preliminaries being gone through, and the scrotal incision, the separation of the fascia and its invagination with the sac, being accomplished as before detailed, the border of the internal oblique is felt for and raised; the conjoined tendon recognised and carefully taken up on the needle, which is then made to traverse the more superficial parts obliquely upwards and inwards. The skin is then drawn in the same direction, and the needle pushed through it. So far the steps of the operation are precisely similar to that first described. (See Figs. 22, 24, and 25.) One end of the wire is then hooked on to the eye of the needle, and the instrument is then withdrawn rapidly and with a slight jerk through the tissues, drawing the wire after it.

"The needle is then disengaged, and passed upon the finger to its outer side as high up as the internal opening of the hernia, opposite which it is pushed through the anterior aponeurosis close to Poupart's ligament. It is then turned so as to traverse the same cutaneous aperture through which the wire has already passed, which is to be drawn upwards and outwards to meet it. The opposite end of the wire is then hooked on, drawn through the puncture after the needle into the scrotal aperture, and then disengaged as before. (See Fig. 26.)

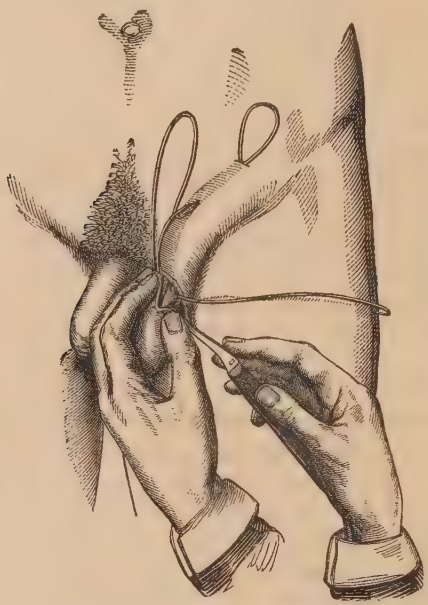
"Thus far the steps of the operation differ only in the one small particular of hooking on and off the ends of the wire, from the operation with threads.

"At this stage of the operation the two ends of the wire emerge together at the lower or scrotal aperture, after traversing the conjoined tendon and internal pillar on the inner side and Poupart's ligament at the outer side respectively; while the loop which connects them emerges at the upper or groin puncture.

"The sac of the hernia and the fascia covering it opposite the scrotal aperture is then pinched up between the finger and thumb, and the spermatic cord is slipped back from their grasp. The needle is then passed from without inwards and a little upwards, in the direction of the incision across the scrotum, close to and in front of the spermatic cord. A slight twist given to the point of the needle will enable it to take up all the structures which lie in front of the spermatic cord, and at the same time to enter and emerge entirely within the limits of the scrotal incision. The curve of the blade and the extensibility of the scrotal tissues will

permit this to be done easily, without making a fresh cutaneous puncture. If this be accidentally done, however, the incision may be extended so far as to meet the new puncture. One of the ends of the wire is then again hooked on to the needle (see Fig. 30), and drawn with it across the cord through or behind the sac, traversing the scrotal fascia.

Fig. 30.



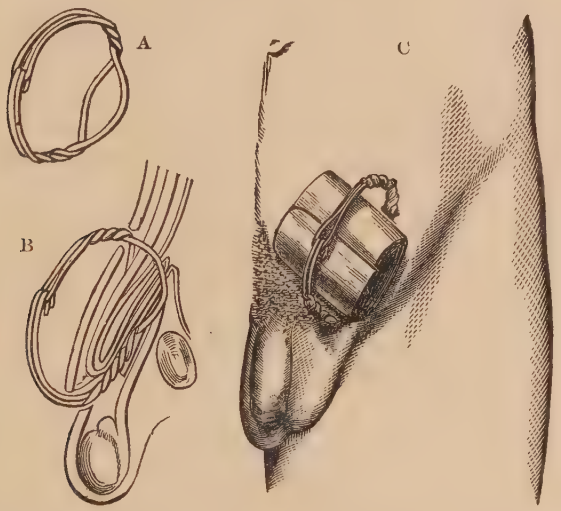
"The next step in the operation is to straighten, stretch, and draw down both ends of the wire, until the loop above is close to the skin. Here it is held by the finger of an assistant while the surgeon twists the ends round each other, giving them three or four turns. This manœuvre twists also the enclosed sac and fascia which are held between the ends of the wire.

"Next, the loop is drawn steadily upwards so as to invaginate the twisted sac and scrotal fascia firmly into the hernial canal, stretching them as far up as possible towards its deep opening. The loop is then, in its turn, twisted well down into the upper or groin puncture, giving it the same number of turns. The forefinger of the operator should now be placed in the scrotal puncture to ascertain whether a satisfactory closure of the superficial ring has followed the tightening of the wire. The effect of traction on the wire upon the posterior wall can also be distinguished. Great care should also be taken that the skin of the scrotum is not drawn upwards between the pillars of the ring, so as to prevent their direct union.

"The projecting ends of the wire are then cut off by pliers about three inches from the surface; and both together bent into a hook, which is carried upwards to meet the loop curved down to receive it, till the two are locked together, and form an arch over the intervening skin. (Fig. 31, A, B.)

"A pad of lint, rolled tightly up to a size sufficient to fill up the interval between the arch of wire and the skin, is then placed under it between the punctures. (Fig. 31, C.) A broad spica bandage is then placed over all, so as to make firm compression upon the wire steadied by the pad of lint."

Fig. 31.



The after treatment, like that following the operation with thread, consists principally in rest, anodynes, cool but nutritious diet, and local cleanliness. The removal of the wire is seldom needed until about the fourteenth day, when, generally speaking, the parts stitched together are found solidly united, and, as it were, fused in a mass of organized material, which effectually seals up the inguinal channel.

In the last six chapters of the first portion of his work Mr Wood enters fully upon the various modifications of the wire operation, which circumstances have induced him to adopt, dwelling especially on an operation performable with rectangular pins, such as used by him in his treatment of varicose veins and varicocele, and specially suited for the congenital herniæ of children. Lack of space forbids our enlarging as we could wish upon these points

and upon our author's excellent analysis of the *modus operandi* of his operations, the causes of failure and danger, the use of trusses, and so forth. For a thorough investigation of these topics we must refer our readers to the work itself, which, we can guarantee, will more than repay accurate study. We may observe, nevertheless, in passing, that however suitable Mr. Wood's truss, with pad centrally hollowed out, may be, after operation, when we desire particularly to save new cicatricial structures from direct pressure, which might lead to their complete absorption, we are disposed to doubt the general applicability of that form of instrument. If the hollowed centre be of any account it is essential that it should invariably hold the same relation to the hernial opening, and, indeed, it must be a wondrous fitting truss which requires no allowance for shifting, with all the various movements of the body. Concurring fully with Mr. Wood upon the objectionable effects of trusses with conical pads, which ever tend to enlarge the hernial aperture, we do not hesitate to state that in cases of reducible hernia, a large and rather flat pad, exquisitely moulded to fit the individual, is the form most generally applicable. Nay, more, we have never met a case of real difficulty in the adjustment of a truss in which any other form of pad permanently succeeded. Much, it is true, depends on judiciously selecting a spring, neither too weak to be efficient, nor so strong as to be irksome, and always as free from complexity as possible. Although we cannot but admire the ingenuity of Mr. Wood's lever spring pad, we are strongly disposed to doubt its general applicability or utility. Indeed, for the most part, we mistrust adjusting springs in truss pads, and have never yet examined a truss with a second or auxiliary spring, *while in operation*, in which it was not manifest that the auxiliary spring was nearly, or wholly, useless.

In the second and third parts of his admirable work Mr. Wood considers the subjects of femoral and umbilical herniæ, and describes the operations which he has invented for these varieties of rupture. We shall refer such of our readers as seek full information on those points to the original treatise, believing it inexpedient to discuss them here. Various reasons incline us to this course. Experience has not as yet been sufficient to offer grounds for satisfactory conclusions respecting these proceedings, and the cases of femoral and umbilical rupture in which operation is demanded are very few indeed. Moreover, we cannot forget that the present notice has already attained a very considerable

length, and that the space at our disposal, and perhaps also the patience of our readers, is not without limit. Our review, however, would be imperfect, beyond pardon, were we to pass unnoticed the appendix, which really contains the pith of the whole treatise. It consists of a complete, but succinct, report of the sixty cases of hernia in which Mr. Wood has already operated for radical cure. Nothing can be more straightforward and candid than the history of these cases—the operations, the immediate symptoms, the after-treatment, and the results. As every experienced surgeon would expect, all cases did not progress equally favourably, and in some rather alarming symptoms supervened; on the whole, however, it is very remarkable in how small a proportion of Mr Wood's patients urgent symptoms have been observed, and how encouraging the statistical records prove, namely:—In sixty cases operated upon forty-two have turned out satisfactory cures, two doubtful, four partially successful, eleven failures, and in but one case death, from pyemia, took place.

In conclusion, we must not forget to notice the admirable style in which the book itself is brought out, reflecting credit alike upon its author and its publisher.

The Principles and Methods of Medical Observation and Research, for the Use of Advanced Students and Junior Practitioners. Second Edition. By Thomas Laycock, M.D., F.R.S.E., F.R.C.P., &c., Maclachlan and Stewart.

Sir Walter Scott put the preface of one of his novels at the close of the story, to give it some chance of being read and understood; and we think the Edinburgh Professor of Medicine might well have done likewise in the present case, as it certainly would prove a benefit to "the advanced student and the junior practitioner." Another eminent countryman of Professor Laycock—Dr. Chalmers—declared, that to "make up" a book well, a man should read it *four* times, each reading to be conducted differently from the other three. Now this is pre-eminently true in the case of the book under consideration, as we shall presently see.

In the introductory note he expresses his belief "that logic, as commonly taught and practised, is not applicable to the new and great world of phenomena comprised within medicine." As an

instance in point he cites the case of "one of the first and most accomplished logicians of the day, lately deceased," and remarks, that he was "so manifestly unable to apply the logic of causation to pathology and therapeutics, that he came to conclusions as to disease and remedy wholly opposed to the daily experience of the profession." The inference to be deduced from *this* logic is plainly no other than that the logician referred to was wrong, because he came to conclusions opposed to the daily experience of the profession. However, seeing that the said daily experience of the profession is itself an ever-shifting standard—as, for example, the daily experience of blood-letting in 1864, as compared with that in 1800—it is clearly an illogical inference to argue against the use of the science of logic "as commonly taught and practised," because one of its eminent advocates came to conclusions adverse to the *present* opinions of most medical men. We argue thus the more, because in the matter in question it is highly probable our opinion would be thrown into the scale medical, and against the follower of Aristotle.

Dr. Laycock observes that "the study of scholastic logic is, in truth, only a training in the use of language, and is as often used to defend error as to elicit truth." This we believe to be an incorrect statement, and one calculated to mislead the student at any rate. We assume that the accomplished logician, "lately deceased," was Archbishop Whately. Now he remarks, in the introduction to his widely-known treatise on logic, that it is "a method of analyzing that mental process which must *invariably* take place in all correct reasoning;" and he carefully repudiates those absurdities of the school-men which certainly were used at times to defend error, and which brought syllogisms and all their belongings into general contempt. Dr. J. H. Newman, who, with Archbishop Whately and others, wrote the treatise just quoted, is a remarkably clear and concise writer; and the beautiful simplicity of style everywhere pervading the works of the late prelate is well known. Without any question these two great men owed much, very much, of this literary excellence to the fact of their being logicians; nor is this in any way affected by the diametrically opposed theological conclusions arrived at by them. Clearness of style and simplicity of diction are much wanting in Dr. Laycock's book; and a very good proof of this is, that "the advanced student or junior practitioner" who reads the most abstruse parts of Watson and Graves with clearness and delight, fails in these particulars, when he takes

up Dr. Laycock's lectures. For one reading of Watson or Graves he must, according to Dr. Chalmers' dictum, take four of Dr. Laycock's; and, at the end, have good reason for thinking that the study of scholastic logic is a most excellent "training in the use of language."

The book before us consists of 403 pages of well printed letter-press, and is divided into two parts. Part I. contains eight lectures. Lecture I. is on "General Principles of Observation and Inquiry;" and in it the Professor advocates the following views:—1. That medicine is necessarily a conjectural art. 2. That experience, derived from careful, sedulous, and accurate observation, is the safest source of practical knowledge, and the best test of all theories. 3. That theories and hypotheses are essential to observation and to the best use of matured experience. 4. That consequently both are necessary to the practitioner. Lecture II. is on the "General Method and Objects of Clinical Study." Here much stress is laid on the need and mode of studying physiognomical diagnosis; and in Lecture III., in remarking on the first general examination of the patient, the following practical advice is given about a small but much neglected matter:—"Have your patient placed with his face to the light, while your back is turned to it. This arrangement will not only prevent him watching the play of your features (a thing the sick are very apt to do in consultation with their medical adviser), but will enable you to scrutinize his more effectually, without attracting his attention to your proceedings. The better to secure this point, you should, if possible, occupy his mind with some indifferent thing—no matter what."—p. 79.

Again he observes, on p. 81, that questions to patients should be as few as possible, and therefore direct; and further he adds:—"Nothing gratifies patients so much as attentive listening; if they become wearisome and prolix they can be readily stopped by asking them to show the tongue." Lecture IV. is "On the Prognosis and on the Order of Succession of Morbid Phenomena." Much of this lecture is superfluous, and can be found in almost any book on medicine—*e.g.*, such a truism as "after you have established your diagnosis and treatment you will still have to watch the progress of the disease from day to day, and to manage the case." This important piece of information we had thought every "advanced student" already possessed, to say nothing of "the junior practitioner;" yet, on p. 127, there are good remarks on the hours of the twenty-four in which pathological and physiological changes take place.

Lecture V. is "On the Due Estimate of Treatment, and on the Management of the Case." Here he remarks on one of several sources of error in therapeutical observation, viz., the very common error of assuming that medical directions have been carried out because they have been prescribed. Lecture VI. is on "The Numerical Method of Research in Medicine." Lecture VII. is on "The Analogical, Philosophical, or Purely Inductive Method of Research." He gives as examples of analogical investigation "the pathology of bronzed skin," and "the metastatic character and general pathology of gout and rheumatism." Lecture VIII. is "On the Naming and Classification of Diseases." In this there is a great deal of what we all know very well, and very little out of the ordinary course. For instance, we are told that *pythogenic fever* "is an unnecessary substitute for *enteric fever;*" that "all names should, as much as possible, express our knowledge;" "when old names are adopted, they should be as strictly defined as possible;" and other observations, which, though quite true, are not original. Part II., which, as we read the preface, is entirely new, is certainly the most important part of this book; and yet, it is of such a kind that this hasty sketch could not afford the reader anything like an analysis of its contents. It is on the classifications of diseases; and to a few only of these can we now direct attention. He says (p. 245), what is undoubtedly true, that they at first appear complex and difficult; and consoles the student with what is an undeniable truth in all study, that on more intimate acquaintance they will appear easier.

According to Professor Laycock diseases are *general* or *local.* The etiological nosology and index of fevers—taking the term in its widest extent—extends over sixteen pages of small type, defies any analysis, is truly "complex;" and whoever gets "intimate acquaintance" therewith will have every right to think himself a very clever student. The causes and origin of many of these are laid down with an amount of dogmatism which is quite refreshing in these days of doubt and controversy. *Ochlotic* fevers—the typhus group—comprise cutaneous ochlotic fevers, pulmonary ochlotic fevers, and gastric and enteric ochlotic fevers. Under the last of these he includes typhoid, of which he gives as synonymes, abdominal typhus, and enteric fever. In an epidemiological point of view he looks on all these as epidemic fevers, "poisons derived from within the organism;" thereby, of course, assuming one side of a controverted matter. Yet he says that enteric fever (p. 267),

is "specially associated with sewer or fæcal miasm," and hence, its hygienic bearing.

In the nosology of constitutional diseases he divides all into A, diathetic or tissue diseases, and B, cachectic or blood diseases. Under A he classes strumous, arthritic, rheumatic, fibroid, osseous, fatty, discolourations or chromatosis, and parasitic diseases; while under B are classed anemic, scorbutus, toxemia, leukemia, genetic cachexiæ, and capillary cachexiæ. Skin diseases are classed as hematic, specific, constitutional, sordid, figurate, and diseases of special cutaneous tissues.

The *general* nosology of diseases of the nervous system contains:—Class A, diseases classed according to disorder of function; B, neuroses, classed according to ganglionic seat, or portion of the nervous system involved in disorders or disintegration; and C, classed according to the nature and causes of disorders and disintegrations. The special nervous nosology comprises—1. Trophesiæ. 2. Sympathetic neuroses. 3. Pneumogastric neuroses. 4. Spinal neuroses. 5. Intra-cranial vasomotor or capillary neuroses. 6. Cerebral; and 7. Cerebro-mental neuroses. No fair recapitulation could be given of the nosology of mental diseases and defects. It is based on a system of the author's, and may be regarded as peculiarly his own. It is decidedly the best part of the book. Next we should rank the nosology of skin diseases, and after that the classification of constitutional affections. We do not at all agree with Professor Laycock in his theory of a complex nosology being the best. His own on fevers is the best answer to his argument; for, to say nothing of the dogmatic causation of it, it goes to the *ultima thule* of complexity in medical writing. The idea of Part I., to make all our advanced students and junior practitioners inductive philosophers, may be very laudable in theory, but we fear it is very unattainable in practice. At any rate, this book, which is worthy of commendation, can only prove a small, and we must think an unattractive, help in the desired direction. A single disjointed effort is good, but a sound scholastic training is necessary before the genus medical student can be regarded as synonymous with inductive philosopher.

Topics of the Day; Medical, Social, and Scientific. By James Ansley Hingeston, M.R.C.S., L.S.A., &c. Churchill and Sons.

Mr. Hingeston is a general practitioner of repute in Brighton. From time to time he has read and published various essays which are now presented to the public in a collected form in the volume before us.

The preface consists of several statements, the general purport of which is, the author's claim to priority of invention in some scientific notions now current. The book itself is divided into three parts, each a collection of essays on various subjects; and many of these essays, we feel bound to say, are replete with interest and pleasing variety. Part I. contains a paper on "Atmospheric Phenomena in Relation to Cholera;" and in it use is made of the meteorological observations taken at the Greenwich Royal Observatory, and of the Registrar General's weekly returns of births and deaths in London. From August 19 to October 28, 1854, the author ascertained that "the calm was the greatest when the disease was the worst; and the disease began to decline as the wind rose." Although diet can scarcely be held to mean "atmospheric phenomena," yet Mr. Hingeston treats of it in relation to cholera, and says, contrary to popular opinion, that "for the most part, the fresh fruits are wholesome." He lays great stress on a clean culinary apparatus, and pithily observes:—"Show me your kitchen and I will tell you your health. Tell me of your constant indigestion, and I will predict the quality of your cook. Can you have good health from sour food? or anything else than an acid stomach from a foul saucepan? Commonplace as this caution may sound, it nevertheless prescribes one of the first principles of domestic management, without which every other precaution is useless. It is the grand secret of health and cheerfulness, and the best preservative there is against the infection of epidemic diseases." Mr. Hingeston, towards the end of this paper, advocates the old idea that, to a great degree, our lives depend on telluric, meteoric, and astral influences; and considers that the shock given to the mind by appearances out of the ordinary course of nature may largely account for the political, moral, and sanitary condition of the world. In the paper on "the History and Practice of Vaccination," the author remarks that "whatever be the cause assigned,

the decline of the old lymph is acknowledged. It has been pointed out by competent observers in every quarter of the globe." After some practical statements about the failure of vaccination, he enters on the question of re-vaccination, which he considers a useless precaution—an opinion in which we by no means coincide; because, he says, there is nothing to prove that the protective agency of the primary vaccination wears out with age, and hence, "to adopt a measure from some vague sense of precaution is as unphilosophic as it is likely to prove illusive." Yet he afterwards says (p. 133), "the question of vaccination is embarrassed on all sides. In times of danger from infection of the small-pox it is unquestionably proper."

Part II. commences with a paper on "Hypochondriasis; the poor man's scourge and the rich man's plague" (p. 150). At p. 156, he thus writes:—"Actual vice apart, there is nothing in this world worthy of either joy or grief; for, strictly speaking, success and failure are equivalent terms: and the last state of experience is to receive all that happens without emotion, and to regard events with a cool, deliberate, and dispassionate eye. Too serious a reflection on the transitory nature of earthly goods is more than enough to drive any one crazy, unless he be blessed with a constitution congenitally apathetic, stoical, or extremely religious. But religion itself is, when abused, a powerful source of hypochondriacism. For either it is believed and disobeyed, which gives rise to reproach of conscience; or else, it is believed in a wrong sense whereby the terrors of Divine Justice are made to supersede the promises of mercy and forgiveness; although, when received in its true sense, according to the rule of faith, religion is a charm that sweetens everything. *O potestas, quid non præstas homini?*"

The paper on ethnological psychology will well repay perusal. The author believes in "three races of mankind;" and he endeavours to show "that the original tongues are, like the original races, only three—the Indo-Germanic, the Malayan, and the Trans-Gangetic." In Dr. Stokes' edition of Dr. Graves' "Studies in Physiology and Medicine," the reader will find two able articles referring to some of the subjects here touched on by Mr. Hingeston. We allude to that on "The Distinctive Characters of Man" (p. 75), and to that on "Varieties of the Human Race" (p. 112).

The next paper is on "The Human Brain;" and this is followed by one on "Reality of Mind," in pursuance of this saying of

Hippocrates:—ὁ κεφαλος του ανθρωπου εστι διπλος the brain of man is double. Next comes an essay on "Deformity of Infantile Crania." In this many popular errors in the management of the heads of infants are opposed and commented on with good sense. "Tell the rudest mother in the world (observes Mr. Hingeston), that her mode of nursing is doing mischief to her children, and show her how, and in what manner she is inflicting a permanent injury upon them, and you have already won over her tenderest affections to your side, and gone more than half way in effecting the radical reform so earnestly solicited." We now alight on a curious paper on "The Deformed and their Mental Characteristics," followed by one on "Cleopatra's Death," and another on "Horace's Death." Next come the component essays of Part III.:—First, a good one on "The Wear and Tear of Medical Life;" and after it "Three Thousand A-year—a Soliloquy," and "The War of 1854." On this last he remarks:—"The final cause of war is liberty. The immediate cause may be the gratification of personal ambition or national aggrandizement and pre-eminence; but its end is liberty. Man is not born free—he must fight for it. In all times and all places, slavery, in some form or other, has always been considered a necessary piece of State machinery." There is here a good historical and geographical description of Sebastopol and its classic traditions. Much more on this subject may be found in Dr. George Macleod's beautifully written book "Notes on the Surgery of the Crimean War." Towards the close of the book we find a paper on "The Peace of 1856," followed by a telling essay on "The Indian Rebellion in its Moral and Psychological Aspects, 1857." Papers on "Orientalism," on "Ancient and Modern Civilization," and on "Change of Scene," bring the student to the end of this little volume. If the reader gets the book he will find much "change of scene," and food for reflection in these "horæ subsecivæ" of Mr. Hingeston of Brighton.

On Malaria and Miasmata, &c., founded on The Fothergillian Prize Essay for 1859. By THOMAS HERBERT BARKER, M.D., F.R.S., Edinburgh, &c. 8vo, pp., 244. London: J. W. Davies.

WHAT are the proximate causes of fevers? What produces typhus? what originates intermittent fever? What causes scarlatina and what puerperal fever? In the whole range of medical research no

more interesting or important topic for investigation could have been selected, nor one more difficult to elucidate—it is a subject that has attracted the earnest attention of the greatest physicians of all ages, without, however, producing, as yet, in our opinion, any very satisfactory result. It is true that we now cure swamp fevers by quinine, which, indeed, not only acts as an antidote, but is almost a certain prophylactic against some forms of ague, when steadily taken in sufficient quantity. But how it produces this effect, and why, is as great a mystery this day as when the virtues of the cinchona bark were first discovered by the Jesuit Fathers in South America.

When we first glanced at the title of the volume now before us we thought from the word "malaria" that it confined itself to the study of those fevers which are supposed to originate from paludal emanations only, but at page three the author informs us that he takes the word malaria in its broadest sense, signifying "bad air, that is to say, air, or a gas, or a compound of gases, which being absorbed by the lungs, gives rise to certain specific effects or symptoms, which grouped together, constitute a disease." In the first five chapters the author passes in review the labours of the principal contributors to this interesting branch of medical science, and in the sixth, gives a summary of their results. He evidently holds the opinions of the Registrar-General on zymosis, for at page 84 he says:—"The thing is clear, ... these are specific poisons for all the diseases under consideration, and all other agencies and influences, whether meteorological, geological, or mental, are but secondary agencies, adding to the effect of the primary, and no more." This leads us into a most interesting field of inquiry, and one which having been but lately entered on, is sure to yield eventually a rich harvest to those who will cultivate it in earnest; we have very little doubt in our minds concerning the general truth of the zymotic theory of disease, though the fermenting process within the live tissues of the animal economy may be a very different thing from the fermentation in a brewer's vat; perhaps *catalytic diseases* might be a less objectionable appellation—but that a process similar to fermentation does take place in the body during certain diseases, we have no doubt of whatever, or how could we account for the fact that a speck of small-pox virus introduced into the healthy blood is reproduced there a million-fold, if it be not that that spec is susceptible of increase in the animal economy; but if additional evidence were required we

would find it in the extraordinary results obtained by Professor Polli, of Milan, who has repeatedly arrested in the living organism the catalytic action of putrifying organic matter injected into the circulation, by injecting at the same time some one of those substances which are known to arrest the ordinary fermenting process, such as sulphite of soda, magnesia, or lime. Chap. VIII. is devoted to the consideration of the relations of certain meteorological states to particular diseases; and as a conclusion, the author states, "it is to be admitted that they throw no direct light upon the origin of epidemic diseases," . . . . "as regards *ozone*," however, Dr. Barker remarks, that "measles, diarrhea, dysentery, influenza, ague, typhus, and erysipelas were most prevalent in the absence of *ozone;* whilst small-pox and scarlet fever were most prevalent when ozone was present." We are inclined to doubt the accuracy of the latter part of the above quotation, as from our own observations and those of a medical friend, who expressly carried out for us a series of observations with the ozonometer in the West Indies, we are pretty well convinced that during the prevalence of all zymotic or catalytic diseases there is a deficiency of ozone in the atmosphere; and, indeed, the author would seem to concur with us, for at page 170, after having directed two chapters to the consideration of a number of cases of typhus, typhoid, and other fevers, he says:—"It is a matter for future observation certainly, whether the presence of ozone may exert an influence in neutralizing the effects of certain poisonous gases. One thing is quite certain, that in the neighbourhood of cesspools all evidence of the presence of ordinary atmospheric ozone is lost, as though it, the ozone, were being expended in overcoming or resolving the emanations arising from the decomposition of the cesspools. Further, it is certain that the absence of the ozone in these localities does not depend on the absence of it in the air surrounding, as is proved by the circumstance that on simply making an ascent the ozone appears. This exactly corresponds with the observations made by our friend, who found that during an epidemic of yellow fever, that no evidence of ozone could be detected on deck, the ozonometer was visibly affected when placed at the mast-head. From page 176 to the end of the book the author endeavours to prove by experiments with cesspool air, sulphuretted hydrogen, sulphide of ammonium, and carbonic acid, that these gases are the *fons et origo* of all zymotic diseases; but, however willing we may be to admit that the emanations of an open sewer may, under certain favourable circum-

stances, produce a class of low dynamic fevers, we cannot admit that they will generate cholera, yellow fever, or the plague; and though Dr. Barker deserves our thanks for his very interesting essay, yet we cannot agree with all his conclusions.

On the Influence of Mechanical and Physiological Rest in the Treatment of Accidents and Surgical Diseases, and the Diagnostic Value of Pain. A Course of Lectures delivered at the Royal College of Surgeons of England, in the years 1860, '61, and '62. By John Hilton, F.R.S., F.R.C S. London: 1863—pp. 499. Bell and Daldy, 186, Fleet-street.

The work before us consists of eighteen Lectures, delivered before the Royal College of Surgeons of England, by Mr. Hilton, in the years during which he held the Professorship of Anatomy and Surgery to that body. As many of our readers are, no doubt, already aware, they were reported in the *Lancet* at the time they were delivered. The author tells us that the urgent solicitations of many of his professional brethren—strangers as well as friends—induced him, without further delay, to publish them in a connected form, simply as they were delivered. Although we do not hesitate to say that Mr. Hilton's book is one of great merit, considerable originality, eminently suggestive, and highly practical, we cannot but regret that the author did not carry out his primary intention of thoroughly revising and remodelling the Lectures before presenting them to the profession. Several marked defects might thus have been avoided; nevertheless, if the author does not fail to fulfil his promise of treating the subject hereafter more at large in a systematic work, it may be that he may profit by the products of his reflection and experience embodied in these Lectures, being submitted to the test of careful consideration and bedside comparison, and that the value of the work to come may thus be enhanced.

We must content ourselves by drawing attention to some of the more interesting practical subjects treated of in Mr. Hilton's work, as the very nature of the book precludes the possibility of giving anything like a complete analytical review of it. The second and third Lectures are for the most part devoted to subjects relating to the pathology of the nervous centres; and the author dwells especially upon, and illustrates by a number of really beautiful examples,

the function of the cerebro-spinal fluid. He explains what he conceives to be the great importance of the existence of a free communication between the fluid of the ventricles and that of the spinal cord. He says that in almost every case of internal hydrocephalus which he has examined after death, he has found the cerebro-spinal aperture (of the fourth ventricle) so completely blocked up, that no cerebro-spinal fluid could escape from the interior of the brain, and as the fluid is constantly secreted, it necessarily accumulates there, and the occlusion appears to him to be the *essential pathological element of internal hydrocephalus.* A similar occlusion, however, occurring at another point, and effectually preventing the egress of the fluid of the ventricles, may as surely cause internal hydrocephalus as occlusion of the cerebro-spinal aperture; in proof of this Mr. Hilton details the following interesting case:—

"A. H—— was a child of unhealthy parents, very thin, feeble, and sickly from birth, uttering constantly a peculiarly distressing cry, and having a remarkable rotary movement of the head. When four months old, the head began to enlarge rapidly; and after this had been noticed a week, the infant became comatose, lying perfectly quiet, almost paralytic, with strabismus and dilated pupils; her skin was of a dingy yellow tint; pulse scarcely to be felt; respiration extremely imperfect, both as regards frequency and extent. After the coma had continued twenty-four hours, as death appeared imminent, the anterior fontanelle was punctured by a trocar and canula, and eight ounces of colourless fluid escaped. While the fluid was being drawn off, the infant began to kick vigorously, the eyelids opened, the strabismus ceased, and the pupils contracted. So that the withdrawal of the cerebro-spinal fluid removed the pressure from the third nerve, which had produced strabismus; from the optic nerves and their commissures, which had been the cause of the dilated pupils; it removed the pressure also from the thalamus and corpus striatum: and this freedom from pressure was manifested by the child moving its limbs vigorously. The lips began to move constantly, especially the lower lip, which had been drawn inwards between the gums. When the finger was introduced into the mouth of the infant, an attempt to suck was made, and a little warm milk and water was swallowed without difficulty. The pulse was about 140, very small and feeble; respiration very irregular; the surface was cold and clammy, but warm applications soon restored its temperature. Moderate pressure was applied to the head. A week after the first operation, after some slight fits, the child became comatose again, and unable to swallow. Eight ounces of turbid fluid were again drawn off, with the same result as before. And three weeks later, the same quantity of fluid, highly coagulable

by heat (inflammatory effusion, not cerebro-spinal fluid), was again evacuated, under similar circumstances. During the next two months the child took mercury and chalk, in small doses, with some benefit. The bones of the head were gradually becoming approximated, and the anterior fontanelle was diminished. The child was emaciated, although it took the breast freely. The thumbs were turned in upon the palms of the hands, and the peculiar movement of the lips continued. The child died on the 30th of October, having had convulsions of increasing severity during four days; but it continued to suck, and took notice of surrounding objects, till the day before its death. The child lived nearly three months after the first tapping. I did not see this patient alive, but I suspected, from Mr. Otway's description of the case to myself, that we should find closure of the cerebro-spinal canal.

"*Post mortem examination.*—Body much emaciated. The bones of the head overlapped each other considerably; the anterior fontanelle was imperfectly felt. There were cellular adhesions between the two layers of the external arachnoid; this membrane was much thickened, and in some places opaque. There was no appearance of cicatrices in the position of the trocar punctures, but some firm adhesions existed at that spot. The veins on the surface of the brain were distended, and a dirty brownish red discolouration, from altered blood, was noticed between the lobes of the cerebrum. Within the right lateral ventricle three distinct cicatrices were clearly seen, corresponding with the punctures made during life with the trocar. Each lateral ventricle was divided in an exactly similar manner by an opaque structure (resembling its lining membrane), in which there was on each side an aperture of about a quarter of an inch in diameter. This was either a new false membrane developed within the ventricular cavity, or the lining of the roof of the ventricle, thickened and subsequently ruptured, so as to allow the fluid to make its way between it and the ventricular wall: most probably the former of these conjectures is the correct one. The lateral ventricles were distended, and contained four ounces of fluid. The plexus choroides was not to be recognised. The septum lucidum was elongated, its ventricle was enlarged, and contained fluid. The cavity of the tuber cinereum was dilated, and so compressed the optic commissure, explaining the dilated pupils and the impairment of vision. The iter a tertio ad quartum ventriculum was dilated nearly as far as the entrance into the fourth ventricle, where it was closed by old and firm adhesion. This occlusion necessarily preserved the fourth ventricle from dilation, and it was accordingly natural in form. The olfactory nerves, as far as their bulbs, were hollow, and communicated with the anterior cornua of the lateral ventricles—this persistence of a condition normal to about the fourth month of intra-uterine life, suggested that the hydrocephalus,

with its pathological cause, had commenced during the period of intra-uterine life."

Mr. Hilton's position and long experience justifies us in attaching great weight to his testimony in favour of that method of opening deep-seated abscesses, which he considers the safest and best. To the subject of abscesses in general, he devotes two Lectures and he, among other things, directs attention strongly to the care necessary in dealing with deep-seated collections of matter. He very truly remarks that some surgeons, when speaking of deep abscesses, say with rash confidence—"Plunge in a knife." We have seen more than one patient's life sacrificed to such rash confidence—if foolhardiness deserves such a name; we cannot, therefore, hesitate to recommend to our readers the careful perusal of Mr. Hilton's excellent remarks on this topic. It is a grand phrase—"Plunge in a knife into a deep abscess." It may be heroic, but it is not a courageous plunge for the surgeon—for to him it is without danger, while perhaps it is a fatal stab to his patient. Some more cautious surgeons say—"Wait until the abscess comes nearer to the surface, so that it can be opened without danger"—but the patient may die in the meantime. The plan Mr. Hilton recommends is this:—"In the case, for example, of opening a deep abscess in the axilla—cut with a lancet through the skin and cellular tissue and fascia of the axilla about half or three-quarters of an inch behind the axillary edge of the great pectoral muscle. At that part we can meet with no large blood-vessel. There is only a small branch of one of the external thoracic arteries, which sometimes runs along the edge of the axilla; excluding that, which if wounded can be easily ligatured, so far as I can see, we run no other risk. Then push a grooved probe or grooved director upwards into the swelling in the axilla; and if you will watch the groove in the probe or director as it is being passed up through the comparatively healthy tissues into the axilla, a little stream of opaque serum or pus will show itself. Take a blunt (not a sharp) instrument, such as a pair of 'dressing forceps,' and run the closed blades along the groove in the probe or director into the swelling. Now opening the handles, you at the same time open the blades situated within the abscess, and so tear open the abscess. Lastly, by keeping the blades of the forceps open during the withdrawal of the instrument, you leave a lacerated track or canal, communicating with the collection of pus, which will not readily unite, and will permit the easy exit of the matter. In this

way you may open an abscess deep in the axilla, or in other important parts of the body, without fear of inflicting any injury upon the patient." Having been connected many years with a large hospital, Mr. Hilton has necessarily had good opportunities of trying this method. During that time he has not opened a deep abscess in any other way, and he can say, honestly and truly, that it has never failed, and that he has never observed any inconvenience from it.

These observations are illustrated by a great number of interesting and important cases, showing the importance of caution in giving exit to matter from deep-seated collections.

"A young lady, aged thirteen, had a deep abscess in the lower third of the left thigh. As far as I can judge of the case by the history which I have received, the abscess was associated with periosteal or subperiosteal inflammation, for the abscess was deep under the muscles. It was opened at the lower and inner part of the thigh with a lancet or bistoury, by one puncture or clean incision, which reached the abscess. Pus escaped, mixed with a considerable quantity of arterial blood; and after all the purulent fluid had been evacuated, arterial blood still flowed from the aperture. The aperture was then plugged. On the third day, the plug being removed, a little hæmorrhage took place, and it was plugged again. On the seventh day after the opening of the abscess, a most profuse and sudden arterial hæmorrhage occurred, bringing the patient really to the very brink of the grave. At that time a consultation of surgeons took place, when it was determined to tie the femoral artery. This was well done, just above the middle of the thigh, and there was no subsequent hæmorrhage. I saw this young lady in London last October. She was then in an extremely emaciated and depressed condition, with a slough upon the back. The aperture made by the lancet was still there, and pouring out daily a small quantity of sero-purulent fluid. I need not trouble you with any further particulars of this case, except to express my opinion, not in opposition to the gentlemen to whom the case occurred, but as bearing upon the facts which I have brought before you. Had this abscess been opened in the way I have suggested, I think the extreme danger to which this patient was subjected might have been avoided. My plan would have been to cut down to the fascia lata, dividing the fascia lata only, and then (instead of allowing the lancet to pass into the deeper-seated parts, where it was impossible to predetermine the precise position of the subjacent arteries) to thrust the grooved director through the vastus internus muscle, and open the abscess by the dressing forceps, guided into it by the groove in the director."

The distribution of nerves—cutaneous, muscular, and articular—

with their relations to each other, and the pathological and physiological deduction from the bearings of the nervous supply of skin, muscles, and joints, on each other, forms one of the most striking features of Mr. Hilton's Lectures. In order to put this important anatomical, physiological, and pathological subject comprehensibly and definitely before his readers, he states it thus:—"*The same trunks of nerves whose branches supply the group of muscles moving a joint, furnish also a distribution of nerves to the skin over the insertion of the same muscles, and the interior of the joint receives its nerves from the same source.*" The details involved in this general statement are worked out by the author with extraordinary ingenuity, and explanations are offered for a multitude of morbid phenomena. Indeed we can truly state that a precise knowledge of the anatomical arrangement of nerve terminations has never been more beautifully or successfully applied to surgical practice than by our author.

"Pain is a fact. Rest is a reality. To study the interpretation of the one and the due application of the other is to pursue the simplest and most obvious phenomena presented by Nature, to the wide and comprehensive laws on which they depend and by which they are regulated.

"In no other science, or combination of science and art, is it, perhaps, so essential that any attempt to establish a legitimate conclusion should be based on the broadest possible foundations as in surgery. I have herein endeavoured to show that 'Rest is a most important therapeutic agent in the cure of accidents and surgical diseases." To illustrate the varied applications of this principle, I first surveyed, as fully as my limits permitted, the marvellous contrivances which Nature has employed for securing rest to the different organs of the body when in health, as if it were the one great object she had in view in the peculiarities of their formation. I then depicted the instinctive promptings of Nature to secure Rest on the occurrence of accident or disease. Lastly, I attempted to shadow forth the appliances for the attainment of Rest which an accurate anatomical and physiological acquaintance with the structure and endowments of every organ and limb will whisper to the mind earnestly intent upon their relief when in a state of disease or derangement.

"I have also endeavoured to impress upon you the fact, '*that every pain has its distinct and pregnant signification, if we will but carefully search for it.* To the extent of my present opportunity I have striven, by the agency of a more precise nervous anatomy, to unravel and render patent the meaning of pains which have been so often described as *anomalous or obscure.* May I venture to suggest, that there is no field open to the future inquirer

from which he will reap a richer reward in the benefit of his race and profession, than from the persevering attempt to interpret the purport and true significance of the manifold pains by which Nature admonishes us of hidden and otherwise imperceptible evils. From the pain of the conjunctiva on the intrusion of a particle of dust, and the closure of the eyelid for the security of rest, up to the most formidable disease we have to treat—pain the monitor, and rest the cure, are starting points for contemplation which should ever be present to the mind of the surgeon in reference to his treatment. Feeling that I have, at most, advanced but one short step towards the object of every scientific surgeon, I trust I have neither dogmatised nor spoken presumptuously. A like idea was doubtless present to the mind of Dr. Darwin when writing the preface to his 'Zoonomia.' 'A theory,' he says, 'founded on Nature, that should bind together the scattered facts of medical knowledge, and converge into one point of view the laws of organic life, would thus on many accounts contribute to the interests of society. It would capacitate men of moderate abilities to practise the art of healing with real advantage to the public—it would enable every man of literary attainments to distinguish the genuine disciples of medicine from those of boastful effrontery or of wily address, and would teach mankind in some important situations the knowledge of themselves.' I may also adopt his quotation from Cicero, changed into the past tense, because it so exactly expresses my feelings:—'Hæc, ut potui, explicavi: nec tamen, ut Pythius Apollo, certa ut sint, et fixa quæ dixi; sed ut homunculus unus ex multis, probabiliora conjectura sequens.'

In concluding this very imperfect notice, we must say that we cannot but regard Mr. Hilton's Lectures as a very substantial addition to the records of modern surgery.

The Restoration of a Lost Nose by Operation. Exemplified in a Series of Cases, Illustrated with Wood Engravings. By John Hamilton, Surgeon to the Richmond Hospital, &c. London: Churchills. 1864. 8vo, pp. 58.

Mr. Hamilton has published several papers in our pages, detailing cases in which he succeeded in restoring the nose. In the essay before us he has collected these cases and re-published them, with several additional ones, and an introductory chapter on the history of the operations that have at various times been proposed for restoring the nasal organ. He has also added a section giving directions as to the steps of the operation, and showing by diagrams the

forms suitable for the flaps in different cases. The essay is a most valuable contribution to a department of plastic surgery that has not received the attention due to it, and we the more earnestly direct attention to it because of our having very recently had, through accidental circumstances, an opportunity of seeing the subject of one of Mr. Hamilton's earliest operations, and we can therefore bear personal testimony to the permanency of the great success that has attended the proceeding.

A Treatise on Hygiene with Special Reference to the Military Service. By William A. Hammond, M.D., Surgeon-General, U.S. Army, &c., &c. Philadelphia: J. B. Lippincott & Co. pp. 604.

Dr. Hammond's Treatise on Military Hygiene is a carefully-written work, and evidently the production of an officer who has had considerable practical experience, and especially in the different unfavourable conditions under which soldiers are placed during a campaign, and the best methods of keeping them in health under those adverse circumstances. The author commences by two chapters on the Qualifications and Disqualifications of Recruits, which contain, however, nothing more than what is known by most students of military surgery. He directs attention, however, to two points connected with the respiratory organs which are not commonly put in practice in the examination of recruits. He says:—

"The mobility of the thorax is a point of much importance, and may be roughly ascertained by means of the tape measure. The tape is passed round the chest over the nipples, and the measurement made when the chest is distended to its utmost capacity with air. It is then measured when the air has been as far as possible expired. The difference gives the mobility. In most healthy men this will be found to be somewhat over three inches. If it is considerably less than this, disease may with confidence be suspected."

Also, referring to the hemadynamometer, he says:—

"This enables us to determine both the expiratory and inspiratory power. It consists of a bent tube of glass, attached to a scale graduated for both sides. An India-rubber tube is attached to one end of the glass tube, to which a suitable mouth-piece is affixed. Mercury is poured into the glass tube till the zero on both scales is reached. Upon expiring into

the apparatus, the mercury is forced to rise in the opposite portion of the tube, and is correspondingly depressed in the portion to which the elastic tube is attached. When the act of inspiration is performed, the opposite movements of the mercury take place. A healthy man, 5 feet, 8 inches, can raise the column of mercury about 3 inches by expiration, and about 2 inches by inspiration. Height exercises a very considerable influence on the respiratory power."

According to Dr. Hammond's experiments men of 5 feet 8 inches, possess it to the greatest extent. From this point it decreases both as the height decreases or increases, which is certainly a very remarkable fact.

In the next chapter, on Race, he has some peculiar views regarding this subject, and commences by stating that the several races of men are distinguished by great differences—so great that they can scarcely be regarded as due to any other cause than a diversity of origin. He says:—

"The negro for nearly 400 years has inhabited America; and yet, excepting in cases of a mixing of the blood, he presents the same aspect as his progenitors, whose representatives are figured in the monuments of Ancient Egypt. And so with the other races: their peculiarities are permanent, and are clearly not due to climate or any other cause than the original impress given to them by the Creator. . . . . Place the Caucasian in the tropics of South America, Asia, or Africa, and although his skin may become darker and his hair blacker and coarser, he is nevertheless, though he remain there for hundreds of years, in no danger of being taken for an individual of any other race."

In speaking of the improvement of races by intermingling of blood, he remarks:—

"Take the example of England: first conquered by the Romans, then overrun by the Danes and Saxons, then entirely subdued by the Normans. Each infusion of new blood formed an era of progress, morally, intellectually, and physically. The conquest of Spain by the Moors is another instance. Arts flourished; sciences were developed; literature was strengthened. The conquerors were in their turn subdued and expelled. Had they retained their foothold, Spain at the present day would have been worthy of them."

He concludes, as a citizen of the Union generally does in questions of this kind, and says:—

"In the United States we have the most striking example of all. Who can doubt that the activity of mind and body, the ceaseless energy, the superb physical development of the people, are due to the commingling of the blood of all the nations of Europe? To be an American is to be a cosmopolitan."

In the chapter on the non-essential constituents of the atmosphere, he gives the details of various experiments relative to the amount of carbonic acid and organic matters contained in the watery vapours from the skin and lungs, which are all of interest to the student of hygiene. Speaking of the organic matters, he remarks:—

"The emanations from the human body are of a decidedly deleterious character when present in large amount in the atmosphere inhaled. Their exact nature has not been satisfactorily ascertained, but enough has been established to show that they consist of various principles derived from the articles taken as food or the products of the destructive metamorphosis going on in the blood and the tissues."

That the ordinary exhalation from the lungs contains organic matter can very readily be ascertained by causing the expired air to pass through pure colourless sulphuric acid, as was done by Valentin and Brunner. Through the carbonization of the organic particles the sulphuric acid becomes of a perceptible brown colour. Permanganate of potass in solution indicates with great exactitude the presence of organic matters in the products of respiration. A solution of this substance in water loses its brilliant red colour, and the salt undergoes decomposition when air containing organic matter is passed through it. By the extent to which the loss of colour reaches we are enabled to form an approximate idea of the amount of such matter present in the air. The solution is placed in Lerby's bulbs, and the air drawn through it by means of an aspirator. Dr. Hammond gives the particulars of one of his own experiments, in which he confined a mouse in a large jar in which were suspended several sponges saturated with baryta water, by which the carbonic acid was removed as fast as formed, which was proved by the fact that on causing a portion of the air in the bell-jar to pass through baryta water no carbonate of baryta was formed. Fresh air was supplied as fast as it was required by means of a tube communicating with the bell-glass and closed by a little water in the bend of the tube, which acted as a valve. As the air in the bell-glass was rarified by respiration and the absorption of the carbonic acid fresh

air flowed in from without, while the arrangement of the tube prevented the air of the bell-glass from passing out. The watery vapour exhaled from the animal was absorbed by two or three small pieces of chloride of calcium. The animal died in forty-five minutes, and the experiment was repeated many times with the same result. On causing the vitiated air to pass through a solution of permanganate of potash, the presence of organic matters in large quantity was at once demonstrated. There can be no doubt, therefore, says the author, that the organic emanations from the bodies of man and other animals in a condition of health are positively noxious, and that too much care cannot be taken to rid our habitations of them; and when persons not in sound health are crowded together, we can at once perceive that the exhalations given off from their bodies are possessed of still greater deleterious properties, and hence the increased necessity which exists for purifying the sick chamber and the wards of hospitals. The exhalations in question cling to the clothing, furniture, walls, and especially the bedding. The last is well known, contagious diseases being readily communicated by the body-linen and bed-clothes; and as regards the effluvia from patients being absorbed by walls, Dr. Hammond cites the occurrence of hospital gangrene in the City Hospital, New York, where it re-appeared although the walls were whitewashed and new plaster put on; and it was not till the entire walls were taken down and renewed that the taint was removed.

The subject of malaria is examined and the known laws regarding its diffusion enumerated and strengthened by the results of his own observation. He inclines to the theory that malarious diseases are propagated by the presence of minute poisonous fungi in the atmosphere acting on the organism through the medium of respiration; and he has noticed the occurrence of immense quantities of the spores of fungi in the air of malarious localities demonstrated by an apparatus by means of which air is drawn by an aspirator through a small copper funnel, and any spores of fungi present are deposited on a glass plate, which can then be submitted to microscopical examination. The author states he is certain he contracted an intermittent fever from inspecting a large quantity of musty hay belonging to the Government, and he has often been attacked by headache and febrile symptoms after working among old books.

"But perhaps the most striking instance of the morbific influence of the fungi is exhibited by the fact, almost certainly established, that they

are the cause of 'camp measles.' The researches and experiments of Dr. Salisbury, of Ohio, leave scarcely a doubt on the subject, and constitute a most important addition to our knowledge of the etiology of diseases. Since the commencement of the present rebellion, the troops in camp have suffered to a great extent from measles. I have seen regiments with half their men on the sick report from this cause. The origin of the disease was a mystery. Men leaving their homes in perfect health would go into camp, and be soon after attacked. Dr. Salisbury, after becoming acquainted with several instances in which a disease not distinguishable from measles had been contracted after the individuals had handled or been in contact with straw in a state of partial decomposition, was led to examine microscopically the fungous growths which attach themselves to wheat straw in a mouldy condition. He gives minute descriptions of the spores and cells of these structures.

"With a devotion to science in the highest degree creditable, Dr. Salisbury inoculated himself with the fungi, and succeeded in producing a disease characterized with all the phenomena of measles. His wife, also, with no less heroism, allowed herself to be inoculated, with similar results. Other instances are given, all to the same general effect.

"On examination of the straw used by the troops at Camp Sherman for bedding, it was found covered with fungous growths of the same kind as those used for the inoculations. Measles was then very prevalent in this camp.

"Dr. Salisbury mentions other facts bearing on this point, in a paper subsequently published, in which the details of the inoculation of twenty-seven persons with the straw fungus, in addition to those previously performed, are given. In all these cases the disease was produced and protection afforded against an epidemic of measles then raging. It would be difficult to present a stronger instance of the relation between cause and effect than that which forms the subject of his memoirs. I am able entirely to confirm his observations relative to the existence of the fungi he describes on moist straw. I have very little doubt that many other diseases will be found to be produced by a like cause. It is highly probable that "hay asthma" is one of these, and I design experimenting on this point as soon as an occasion offers."

He mentions some experiments he made respecting the presence of ozone in the atmosphere during the prevalence of epidemics, and states that at Fort Riley, in Kansas, cholera prevailed on two occasions to a great extent during his service, when the air was dry and contained no ozone as long as it continued; also that the occurrence of a very severe thunderstorm put an end to the epidemic in both instances, and ozone at once reappeared in the atmosphere.

In the chapter on Water various simple rules useful in campaigning are given for analyzing it and detecting impurities. Speaking of organic matters, he says that infusoria are not poisonous in themselves, but a great abundance of them in water indicates the presence of a large quantity of food for them, and that food consists of vegetable and animal matters. If it be kept exposed to the air for a few hours it will become putrid, and such water will not support the higher forms of infusoria. Organic matters are detected in solution in water by a solution of permanganate of potash. A drop of the saturated solution added to half a pint of distilled water gives to it a beautiful pink colour, which will remain permanent for a long time; but if the same quantity be added to any ordinary drinking water, the permanganate is decomposed by the organic matter present, and the characteristic colour is destroyed as soon as found.

If much organic matter be present more of the solution will be required to produce any colour at all; and by the quantity used to cause a permanent pink tinge we draw our conclusions relative to the purity of the water examined. The author states he prepared a standard solution of permanganate of potash, one drop of which gave a permanent pink colour to ten fluid ounces of distilled water. Into this mixture he placed a single blade of grass, with the effect of instantly destroying the colour. In another experiment two drops of an infusion of hay were sufficient to do so. It required four drops of the standard solution to give a fixed colour to ten ounces of the water introduced into the city of Washington; eighteen to give it to ten ounces of water from a marsh behind the city; and twenty-seven to give fixed colours to ten ounces of the canal water flowing through the town. He directs particular attention to the danger of keeping pure water in cisterns lined with lead, or transmitting it through lead pipes, and describes experiments instituted by him, the results of which coincide with the observations of Christison and other toxicologists.

Regarding organic matter in water, Dr. Ackland's memoir on the cholera is cited, wherein he states that in 1832 the parish of St. Clement's suffered greatly from cholera, and that at that time the water supply was derived from a stream into which sewers emptied; whereas in 1849 and 1854, when the water was obtained from another and purer stream, the mortality from this disease was small. Also that the inmates of the County Gaol suffered greatly from cholera when they were supplied with water pumped from a filthy pond

within ten feet of one of the drains. On obtaining water from another source the cholera disappeared.

Dr. Snow, in his pamphlet on the Mode of Communication of Cholera, brought forward many facts to show that cholera was only communicated by means of drinking water; and Dr. Hammond thinks there is every probability that this is one of the chief means by which it is disseminated. By soap we have a ready test of the adaptibility of water for cleansing purposes; and it is also an excellent test of the quality of water as a drink, and can be so easily employed that its use in examinations of the kind should never be omitted.

Several modes of filtration are described by Dr. Hammond, the best of which appears to be that of Dr. Cutbush, of the U.S. Navy, in which it is effected by alternate layers of gravel, powdered charcoal, and clean sand.

The chapters on hospitals, temporary and permanent, contain much information of a kind useful to the student of Hygiene. He commences by a description of the ground, &c., which should be selected as the site of a hospital, showing, from many examples, the danger to the sick arising from the vicinity of canals, marshes, sewers, grave-yards, &c., and the necessity which exists for a careful examination of the soil and subsoil, clay being very objectionable on account of its retaining moisture. The materials best adapted for the construction of hospitals are then considered, after which he enters on the subject of the form and general arrangement of them, commencing with those which have been built on an objectionable plan. Of these a ground plan of Guy's Hospital is shown, constructed on the old plan, where three or four sides of a square are built upon, both light and air being to a great extent excluded.

A plan of the Hôpital Necker, in Paris, follows, and one built at Hilton Head, South Carolina, during the first year of the rebellion (as our author invariably speaks of the war still raging in what were once the United States).

In both the same objectionable plan of construction exists.

A plan of the Marine Hospital, St. Louis, and one of the Hôpital de la Clinique, Paris, are then shown, in which the wards are crowded together in pairs, with deficiency of ventilation by windows, and inadequate cubic space, giving only between 500 and 600 feet for each patient.

Referring to Netley Hospital, he says:—" The wards are of small

size, containing each from nine to fourteen beds, and generally have but one face exposed to the external air, so that ventilation and lighting are not sufficient. A plan of the Seminary Hospital, Georgetown, follows, in which a closed corridor runs the whole length of the building, and the wards are situated on one side of it, the opposite end of the wards facing the street.

A ground plan is then given of the New Hospital of King's College, London, in which there are four rows of beds between the windows, so that the exhalations from three rows of beds pass over the other row before they can escape by the windows; and a plan of Arbor Hill Hospital, Dublin, taken from the British Blue-book (*Report of the Commission Appointed for Improving the Sanitary Condition of Barracks and Hospitals*, 1861) shows the absurdity of the arrangement, whereby eight complete hospitals, with surgeries, kitchens, pack stores, serjeants' rooms, &c., are intended for the regulation accommodation of 200 sick in forty wards.

Here ventilation is most injuriously interfered with, and unnecessary cost is incurred in the administration. The first chapter on hospitals, concludes with the following remarks, the truth of which will be endorsed by all who have studied the subject:—

"Another faulty plan is that in which several stories are built one over the other. It may be laid down as a rule that hospitals should never consist of more than two floors or wards—one is preferable—owing to the great difficulty of administration, more than counterbalancing any advantages that may be derived from the other arrangement; and there is another objection of still greater weight. The crowding together of so many wards under one roof has the same effect as placing too many sick in one room. It has been definitely determined that not more than 100 sick *can* be kept under one roof without an increased mortality being the result. And it does not make a great deal of difference whether they are contained in one sufficiently large room or in several smaller ones."

Speaking of cubic space he of course adopts the new regulation 1,200 cubic feet for each patient in permanent hospitals in temperate, and 1,500 in tropical, climates. The height of the wards should not be greater than fourteen feet, eighty-five to eighty-seven square feet being allowed. Regarding this he remarks:—

"It will not answer to make the wards high and to curtail them proportionally in the other dimensions, for after the height of fourteen or fifteen feet is attained in a ward, the air of any space above that is of

very little practical benefit to the patient. It is by no means impossible to produce sickness by crowding persons together in the open air, where the number of cubic feet to each is only limited by the height of the atmosphere above the surface of the earth."

In addition to a ward are certain rooms which are indispensable, viz., a bath and ablution room and water-closet at the one end; a ward-master and orderlies room and scullery at the other; or instead of the latter a mess-room; a window opening into the ward-master's room from the ward to allow a proper supervision to be exercised over the patients.

The kitchen should be entirely detached from the hospital, or should occupy a part of the building away from the wards. Nearly all the above recommendations are found in the British Blue Book for 1861, previously referred to, but Dr. Hammond gives all the essential particulars without entering so much into detail, so that his work is useful for the student or army surgeon.

The pavilion principle for permanent or temporary hospitals is next considered, and a ground plan of the Lariboisière Hospital at Paris is shown, where ten long pavilions are placed parallel to each other, five on each side, an arched corridor passing completely round and connecting the entire buildings; a garden, rather more than an acre, is enclosed within the square, besides gardens between every two pavilions. It, in fact, consists of six hospitals, connected together for the purpose of a common administration, so as to admit of the whole building being traversed with facility, and the four corner pavilions being appropriated for store rooms, officer's quarters, &c. Each pavilion contains beds for 102 patients, which are accommodated in three wards, for thirty-four patients each. The only objection to this hospital is that the pavilions are three stories high, and that they are too close together, the lower wards in the mornings and evenings being shut off from the rays of the sun.

Ground plans of the proposed military hospitals at Woolwich and Malta, copied from the British Blue Book, are here inserted, in which the advantages of the pavilion system of construction for sub-dividing and isolating the sick, are evident at a glance.

The hospital in this country which appears to have impressed him most favourably, is the Blackburn Hospital, which differs from the Lariboisière in Paris in the following respects:—There is no square in the centre, and the pavilions, eight in number, are not placed opposite, but alternate to each other, all of them leading into a common long corridor, about twelve to fourteen feet broad.

This appears to be taken as the model for the great temporary hospitals erected in America since the beginning of the present war, and the description of these is the most interesting part of the book, temporary wooden hospitals on such a gigantic scale being previously unknown. Dr. Hammond says—

"It will be found that never before have such vast structures been erected for the reception of the sick and wounded of an army, or so much care bestowed by a Government in providing them with everything calculated to add to the comfort of the inmates. Millions of dollars have been spent in building these hospitals, and millions more in fitting them up. Especial care has been taken to secure every hygienic advantage in the way of fresh air, abundant light, an ample supply of water, efficient drainage &c., until, except as regards the less permanent character of the materials of which they are built, these temporary military hospitals rival in the completeness of their arrangements the best permanent hospitals of the world."

A description of one of them will suffice. The Mower General Hospital, at Chestnut Hill, Philadelphia, is the largest institution in the world devoted to the reception of sick and wounded only, and contains 2,820 beds for patients, besides 500 for officers, stewards, cooks, &c. It is composed of fifty pavilions, arranged in radii projecting from a corridor of a flattened elipsoidal form. This corridor is sixteen feet wide, and 2,400 long; the ground enclosed by it is 653 feet long and 522 broad, the area being 341,466 square feet. The principal offices are in this central space.

The pavilions are twenty feet apart at the corridor, and forty at the distant extremities, so that the circulation of air around them is secured. The length of each is 175 feet, and the width twenty. The height to the eaves is fourteen feet, and to the ridges nineteen. The length of the ward is 150 feet, the remaining twenty-five feet of the length of the pavilion being taken up by the mess room at one end, and the wash room and wardmaster's room at the other. As each ward contains fifty-two beds there is an allowance of a fraction less than sixty square feet and 950 cubic feet to each patient when the ward is full. The water closets are well arranged, the excreta being carried off at once by a full stream of water. The bath-room is furnished with a cast-iron bath-tub, to which, with the scullery, hot and cold water are supplied.

To each ward at the end joining the corridor a mess-room is attached, sufficiently large for the use of those patients able to

leave their beds, and the food is brought to these rooms in hot water cars running on a railway laid in the corridor throughout its entire length. By this means the meals are served hot from the kitchen, with which the railway is immediately connected, and it also serves for the transportation of patient's to their wards, and for carrying fuel, &c. Hot water from large boilers is supplied to the kitchen and laundry by a steam engine, which also forces it to other parts of the hospital. Over 150,000 gallons of water are used daily, which is an average of about fifty gallons to each inmate. The sewerage is very efficient, and both the administrative buildings and wards are lighted with gas.

Ventilation is along the whole ridge in Summer, with holes cut in the sides of the wards under the beds, capable of being closed by a sliding door, so as to allow of the free entrance of air. This system is very effective. The sun heats the roof, whereby an upward current is established, and the air of the ward is constantly kept renewed. The experience of the Summer of 1862, when many hospitals, ventilated on this principle, were in operation, and when they were, from the large number of sick and wounded suddenly thrown upon them, crowded to the utmost limits consistent with sanitary requirements, demonstrated that the air was always cool and free from offensive odours.

"In the northern parts of the United States it may become impracticable to keep these ventilators open during the winter months, and at the same time maintain the necessary degree of heat in the wards. In such cases other means of ventilation are rendered necessary. The arrangement adopted in the military hospitals is based upon the principle of introducing, in cold weather, all the fresh air required for the constant change of the atmosphere within the wards at or near the stove, so that it shall be moderately warmed before entering the room, and thus in a measure to avoid the unpleasant cold currents so annoying in a room heated exclusively by direct radiation.

"If the means of exit for the vitiated air are sufficient in a room heated by an ordinary stove, the air enters from without with the external temperature, through any cracks about the doors or windows, and thus irregular currents are excited.

"To obviate this difficulty, and at the same time provide a sufficient amount of fresh air, holes are cut in the floor under the stoves, and fresh air is brought to them by means of wooden boxes passing between the floor and the ground to the side of the building. A zinc jacket partially incloses the stove, and serves the purpose of retaining the air long

enough in contact with the heated metal to receive a portion of its temperature. By this means fresh air is provided, and is heated before it is distributed throughout the ward.

"For the exit of the impure air square wooden boxes are erected in the ward, passing from the floor through the ridge of the roof. These boxes are open on two sides near the floor, and one side consists almost entirely of a door extending throughout nearly the whole length of the shaft. To each stove there is one of these shafts or boxes, and in order to cause a current through them the stove-pipes pass into them, and thus emerge from the roof."

Dr. Hammond approves of ridge ventilation for Winter as well as Summer, however, and says that with very little additional expense it could be made available for all seasons of the year; and that even for permanent hospitals of brick or stone it is the best that can be devised. Fresh air, heated, should be supplied in abundance, and the vitiated atmosphere should be allowed to escape through an opening extending the whole length of the ridge. If the air entering the wards of the temporary hospitals were heated by passing over coils of pipes containing steam or hot water, it would be perfectly practicable to retain the great advantages of the ridge ventilation throughout the space. The walls should be double, and the ceiling should be arched over, leaving an open space in the centre, which might be partially closed by a perforated plate of iron, but which should allow of free communication with the external air.

The openings in the sides of the ward, through which the fresh air is admitted, should also be covered with perforated iron plates, and the space between the two walls should contain the heating apparatus. A plate of iron should be placed between the walls, so as to force the heated air to enter the ward through the opening near the floor. Both the external and internal openings should extend the whole length of the pavilion.

Of course this would necessitate the erection of pavilions but one story high; but this would be an advantage in every respect.

Dr. Hammond has set a good example in publishing his opinions and experience, and we hope to see many more books of a practical character emanating from the surgeons of the American armies—that some kind of good may result from this senseless, fratricidal war.

PART III.

MEDICAL MISCELLANY.

Reports, Retrospects, and Scientific Intelligence.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.[a]

DR. MAYNE, President.

Aneurism of the Aorta.—DR. MAYNE exhibited a specimen of a large aneurism of the thoracic aorta, and gave the following history connected with it:—

The case was that of a man, aged 42, who had been admitted into the Adelaide Hospital on the last day of November, 1862. He had been a compositor by trade, and had a very pallid complexion; his pupils were much dilated, and his eyeballs very prominent, but the great pallor of the surface was what principally struck them on his admission. Two years ago he for the first time began to complain of pain in the region of the sternum, especially near the xiphoid cartilage; he described it as a deep-seated pain, but it was not sufficiently severe to prevent him following his occupation for eighteen months afterwards. Six months ago, that was just eighteen months after the pain was first felt, he had a sudden attack of hemoptysis, which was profuse, and lasted, off and on, for several days; it subsided suddenly, but from that moment it appeared as if his disease had taken a new start. He became incapacitated from following his occupation; and the pain, instead of being limited, crept round the chest along the seventh rib, to half way between the sternum and spine. He particularly observed palpitation of the heart from the

[a] These reports are furnished by Dr. R. W. Smith, Secretary to the Society.

time the hemoptysis occurred. It mattered not in what position he was, or whether at rest or not, it never left him, or allowed him to forget the sensation. His breathing became very short, and he had also a short cough. With these symptoms, then—the pain, palpitation, difficulty of breathing, and cough—he was admitted into hospital.

On inquiring into his history, Dr. Mayne found that he had never taken mercury, at least not to any great extent. He had had syphilis when twenty-five years of age, but it was not constitutional. He drank very freely—in fact, indulged to a great extent in spirituous potations—up to the time of his admission. On stripping his chest there was visible the most remarkable palpitation he had ever witnessed; it appeared to be not a single tilt of the apex of the heart, but as if the whole surface of the organ struck and dilated the chest. For a moment they asked themselves if it could be an aneurism in this unusual situation. However, on careful examination, they all agreed that it was the heart itself palpitating. The two sounds were perfectly distinct. The next point worth noticing was, that between the palpitation of the heart and the beating of the pulse at the wrists there was the most marked difference. The pulse at both sides was both weak and thin, but regular; and it seemed paradoxical that the fluid feebly forced along the radial artery could have come from a heart pulsating so powerfully. On looking at the veins at the root of the neck, some turgescence was visible, but not much; and they also observed that there was slight venous regurgitation; and, lastly, they noticed that there was a loud intercostal murmur over the heart. It was most perceptible at the left portion of the apex of the heart, and almost within the region of the heart itself. They were not able to trace it down the back; but it was perfectly identical in all points with the character of mitral regurgitation. This series of symptoms led the majority of observers to conclude that the case was one of disease of the valves of the mitral orifice. He should recapitulate them:—Disproportion between the impulse of the heart and the beating of the pulse at the wrists; a loud intercostal murmur; profuse hemoptysis; and, lastly, venous regurgitation at the root of the neck. The picture seemed complete.

The next question for consideration was this:—On placing the man erect in the bed, and examining the posterior part of the chest, they found that at least two thirds of the left part of the chest, from the spine behind to the sternum in front, was as dull as it was possible to be; they also found that there was a complete nullity of respiration. Lastly, upon a very careful examination of the two sides of the chest, there was found to be great dilatation of the left side; compared with the right, there was a difference of from half to three-quarters of an inch; and, recollecting that in ordinary cases there was a difference in favour of the right side, such a disproportion as existed in this case was a remarkable symptom.

Dr. Law reminded him that he made the man go on his hands and knees; but this change of position had no effect on the dull sound of the chest. They then debated the question whether it might not be pleuritic effusion, but decided in the negative, for the history of the case and the symptoms did not favour that view. The question then was, whether a large aneurism occupied the posterior mediastinum, almost from the top to the bottom, and displacing the lung. Each of these suppositions had advocates, but all admitted freely that the diagnosis was attended with extreme difficulty. There was no tenderness along the spine, nor any affection of the lower limbs.

On the 17th of December he was attacked during the night with very profuse hemoptysis, and was reported to have spat up a large quantity of arterial blood, which they found coagulated on visiting the ward in the morning. The hemorrhage had then ceased, and they did not insist on a very careful examination of the chest, fearing that the bleeding might recur. The pain had become more intense. Whilst standing at the bedside, a pulsation was observed at the seventh intercostal space, half way between the spine and xiphoid cartilage. They observed a wavy palpitation, but it was exceedingly faint.

On the 22nd of December he had another attack of hemorrhage as profuse as before; the dulness had extended over the lung, and the next day his breathing was more impaired; the sputa had acquired a rusty tinge, and a semi-transparent appearance, and very viscid character.

On the 17th of January he had another attack of hemoptysis, the quantity of blood lost being computed to be sixteen ounces. He seemed to be very much weakened by these attacks.

On the 20th they observed that he had œdema on the side upon which he lay; his eyelids were swollen, and the left side of the face was puffy.

On the 22nd of January he was again attacked with hemoptysis, from the effects of which he never rallied. He had had in all five attacks of hemoptysis.

Autopsy.—The first thing they observed on laying open the chest was the heart tilted forward very much, and in close proximity to the anterior parietes, and an aneurismal tumour behind the heart, which encroached on the pericardium, and tilted the heart forward. The valvular apparatus of the right auriculo-ventricular orifice was healthy. Two, or even three fingers could be pushed through the opening. The aortic valves were slightly thickened, but seemed to be quite capable of closing the orifice. The coats of the vessel were extensively diseased. The aneurism commenced at the fourth, and extended to the tenth dorsal vertebræ.

The point of greatest interest was that, on making a careful section of the lung, they found an aneurism in its substance; it had passed from behind forward, and made a place for itself in the interior of the lung. It was now easy to account for the numerous attacks of hemoptysis; it

was a leaking aneurism, which had bled four times under their own observation, and once before the man came to hospital. The lung was closely adherent to the parietes. The pleura was enormously thickened, and cartilaginous in structure, and it was no wonder that two-thirds of the lung should have been dull. All round the aneurism the lung was attached, and in a state of grey hepatization, and hence the pneumonic sputa which occurred on the 17th of the month. Lastly, it was discovered that the tumour was making its way to the surface and pushing the pleura forward. The sixth and seventh ribs, just about where the wavy palpitation took place, had become eroded. In following up the trachea posteriorly, both bronchi were found to be full of blood. Death occurred in these cases, sometimes not so much from hemorrhage as from asphyxia; the blood first got into one bronchus, and then, going into the other, killed the patient by asphyxia. The œsophagus was displaced by the tumour, but the recurrent nerve seemed to be uninfluenced by it.

Dr. Mayne observed, that two years ago he exhibited a specimen of a leaking aneurism, during the progress of which no less than eight attacks of hemoptysis occurred.—*January* 24, 1863.

Cancer of the Stomach.—Dr. Law said that the case which he had to bring under the notice of the society was one of cancer of the stomach occurring in a man between fifty and sixty years of age, who stated that he had been suffering pain in the region of the stomach for six months previous to his admission into hospital; but had been very ill for three months before that period. His appearance bespoke great pain and distress, which he referred to the epigastrium. He always lay on his back. There was some difficulty in examining the abdomen in consequence of the contracted state of the muscles of its parietes. He had daily vomiting, especially about an hour after meals. His bowels were confined, but not obstinately. His whole aspect, and the description he gave of himself, indicated malignant disease of the stomach, situated probably in the neighbourhood of the pylorus. The diagnosis formed was that the disease did not affect this orifice materially—that it was neither permanently dilated nor contracted.

If, according to Dr. Law, we could establish the existence of disease of the pylorus we should be enabled to predicate whether the orifice was dilated or contracted from the state of the bowels. If contracted, they were constipated, and if dilated, diarrhea resulted.

The patient was under his care for six weeks without any material improvement; the character of the discharges which he vomited was that of a brownish barmy fluid usual in these cases; but for a long time there was no appearance of blood or of the black coffee-grounds discharge; and it was only two days previous to his death that he threw up a large quantity of this black matter. He then sank rapidly.

On opening the body after death attention was especially directed to where the disease was supposed to be situated. The lower bone of the sternum formed an angle with the middle, its posterior face looking backwards and upwards. Behind it lay the pyloric extremity of the stomach firmly adherent to the under surface of the left lobe of the liver. On opening the stomach there came into view, near the pylorus, a circular ulcer, about the size of a crown piece, with a soft spongy margin internally, but hard and distinctly carcinomatous as it made its way outwards, till it reached the liver, where it formed the adhesion to this organ which presented itself when the body was opened. The liver, in fact, formed the roof of the ulcer, its structure becoming as it were an operculum or stopper to fill up the circular opening produced by the ulceration. The edges of the ulcer were bevelled so that the inmost circle of it was much larger than the outward that was connected with the liver. A considerable portion of the mucous membrane in the immediate vicinity of the ulcer was deeply congested, and evidently supplied the dark coffee-grounds discharge which preceded death. Although there was a considerable development of scirrhous structure near the pylorus, the examination completely verified the diagnosis that this orifice was but slightly if at all implicated, easily allowing the fore-finger to pass through it. The capacity of the stomach, as is usual in cases of scirrhus of the pylorus, or of the portion of the organ in its neighbourhood, was greatly enlarged. The structure which connected the stomach and liver was very hard, and offered considerable resistance to the knife. It was a perfect specimen of scirrhus; there was no scirrhous development in any other part of the liver.

There was a striking emphysematous condition of the submucous cellular tissue of the stomach, a phenomenon which Dr. Law had not unfrequently observed in connexion with irritation and inflammation of the mucous membrane, and which he believed was often overlooked.

The patient dated his first uneasy sensation in the region of the epigastrium from an injury he sustained, some years since, by a man falling on him with his knee on his chest, and which caused the deformity of the sternum which had been noticed. He did not pay much attention to it till six months before his admission into hospital; nor did he consider himself seriously ill till three months before this date. Judging from the appearance of the diseased parts, and the time required for such lesion, Dr. Law was satisfied that disease must have been working its silent way for a considerable time, and that probably it was when it commenced to ulcerate that he began seriously to feel it.

Dr. Law ascribed the man's death to the large discharge of coffee-grounds fluid which was, in fact, a discharge of blood.

This was the second case of large cancerous ulcer of the stomach supposed to originate from injury, that Dr. Law had brought under the

notice of the society. The subject of the former case referred his earliest sensation of pain in the epigastrium to his having jumped from a high ditch on the road. He was immediately seized with vomiting of blood, and eventually died of a large ulcer of the stomach which had contracted adhesions with both the liver and the pancreas.—*January* 16, 1864.

Scirrhus in the Mammary Region.—Dr. M. H. Collis exhibited a specimen of a scirrhous tumour removed from the mammary region of a lady, aged thirty-five, the mother of five children. Its origin was traceable to a blow of a stick received three years ago, followed by slighter injuries upon several occasions. After the first mentioned blow she had been subject to pain in the part, and always complained much on receiving blows, however slight, from her childrens' heads and little fists while playing with her. The inference he drew from these facts was, that the local injuries caused effusions of blood; that these were only partially removed by absorption, and that what remained became the nucleus of scirrhus; and he believed that in the majority of instances, such was the origin of cancer, as far as regarded local causes. The tumour seemed to have begun beyond the limits of the glandular structure, which it only implicated at one point, where there had been a small abscess during one of the periods of lactation. This was in the immediate vicinity of where the first blow had been received. When he first saw the case, about one month ago, there was a small elevated nodule, like a nipple, rising about half an inch above the level of the surrounding tumour; its surface was livid, and the tumour seemed about to give way at that spot. The use of ice greatly relieved the pain and diminished the swelling that was caused by effusion of the products of inflammation. The glandular system of this lady was naturally extremely irritable; a circumstance which tends to account in some degree for the formation of cancer at so early an age. The tumour was not removed without the advice of some of the most eminent surgeons on the subject of cancer, and the removal was strictly limited to portions affected, the disease not having been primarily one of the mammary gland. Although the case was not a very favourable one, still, considering the patients youth and good general health, it was thought the operation afforded the best chance of prolonging life.—*January*, 16, 1864.

Aneurism of the Aorta.—Dr. Banks gave the following history of a specimen of aneurism of the thoracic aorta, which he brought under the notice of the society:—

A man, aged fifty, was admitted into the Whitworth Hospital, Feb. 9th, 1863. He had been of temperate habits, had never suffered from syphilis, and was able to pursue a laborious occupation (that of a whitesmith), in good health, up to the period from which he dated his

illness (seven years since). At the time mentioned he was in the act of striking the anvil with a heavy hammer, when he was suddenly seized with a severe darting pain as if something sharp was driven through his chest. It soon passed off; but on the following day it returned on resuming his work, and from that time up to the period of his admission into the hospital, he was never free from pain more or less severe, and often of a most excruciating character, shooting through the sternal region, along the side of the neck, and down the arm. He experienced, after some time, a sensation of deep pulsation about the middle of the sternum, and six months afterwards a slight prominence was observed corresponding to the upper third of the sternum.

At the end of three years the tumour had not attained more than the size of a pigeon's egg. It then appeared to recede; but a swelling showed itself a little lower down, and steadily enlarged up to the date of his admission into the hospital. It was then as large as a clenched fist, occupying the sternal region, extending towards the right, and to some extent encroaching on the neck. It pulsated visibly; on placing the hand on it a double impulse was perceptible. On applying the ear, two sounds were heard exactly similar to the cardiac sounds; but much louder than those audible in the region of the heart of the patient. There was no murmur either in the tumour or in the heart, but the impulse of the latter was feeble and its sound was louder than is usually the case. The radial pulses were alike. The respiratory murmur was normal in each lung. There was neither dysphagia nor alteration of voice. There was no venous enlargement on the front of the chest, but the right jugular vein was tortuous and much larger than the left. The pain was constant, but subject to occasional paroxysms of great severity. Its seat was in the immediate vicinity of the tumour, rather than in the tumour itself, and sometimes extended to the arm and side of the neck.

After he had been for several weeks in the hospital, he, for the first time, experienced a slight but intermittent dysphagia. Some time afterwards, fancying that he was better, he left the hospital, but frequently afforded us opportunities of observing the progress of the case; and when suffering more than usual he came into hospital and remained for a short time. The date of his last admission was December 30th. His appearance was greatly changed within a short period, and was indicative of severe suffering. His nights had of late been almost sleepless, and the difficulty of deglutition had become constant and distressing. He was unable to swallow in the recumbent position, a circumstance connected with aneurismal dysphagia long since noticed by Professor Law.

The growth of the tumour since August last had been very rapid. Repeatedly it seemed about to give way externally, having become soft and discoloured on the surface.

On the 15th of January, after passing a sleepless night, and suffering

much pain and some distress of breathing caused by viscid colourless mucus which he found it difficult to expectorate, he died calmly and quietly. On examination it was found that the aneurism, which was of great size, sprang from the anterior part of the aorta, near the origin of the arteria innominata. The sternum had been absorbed, and the sternal end of each clavicle displaced. There was no disease of the heart. In this case life was prolonged for nearly eight years, and death occurred without rupture of the sac.—*January* 16, 1864.

Wound of the Heart.—Professor R. W. Smith exhibited a recent specimen of a wound of the heart. The subject of the injury was one of a party of soldiers of the 86th regiment who had been enjoying themselves, up to a late hour at night, in a house in the vicinity of the Richmond Hospital, when some dispute having arisen, the deceased was stabbed in the chest with a clasp knife by one of his comrades. He was dead when brought to the hospital.

The *post mortem* examination showed that the blade of the knife had penetrated the apex of the right ventricle of the heart, passing into its cavity; it had not wounded the opposite wall of the ventricle. The pericardium contained a large quantity of blood, partly coagulated. There was also a considerable quantity in the pleural cavity. The blood had likewise dissected, as it were, the costal pleura from the side of the chest. The wound of the ventricle was not much more than a quarter of an inch in length. Professor Smith reminded the society of the case of wound of the heart brought before them by Mr. Adams, in February, 1861, and gave a short *resumé* of that gentleman's remarks on the comparative fatality of wounds of that organ and of the aorta, as regarded the duration of life after the receipt of the injury.—*January* 16, 1864.

Malignant Disease of the Bladder.—Dr. Fleming exhibited a specimen of malignant fungus of the bladder taken from the body of a man of about fifty-five years of age, and of great size and weight, who applied at the Richmond Hospital, labouring under the rational signs of stone in the bladder so strongly marked that nothing but the introduction of a sound was supposed to be wanting to establish its presence. No stone, however, could be detected when the instrument was passed. The man would not then remain in the hospital; but six weeks afterwards was admitted under the care of Dr. Fleming. In the intervening period he had been employed at his ordinary work as a lime-burner. As far as could be learned from him (for he was quite deaf) the symptoms of urinary disease had only shown themselves two months before the period of his admission; his sufferings were most acute and were increased to an agonizing degree by any rough movement.

He now suffered from irregular attacks of hematuria; there was

nothing in his aspect indicative of malignant disease, and his general appearance was that of a person in tolerable health. The condition of the walls of the abdomen rendered it impossible to ascertain the state of the bladder from examination of the hypogastric region, the accumulation of fat was so considerable. There was, however, no appreciable tenderness on pressure. Examination by the rectum detected enlargement of the lateral lobes of the prostate gland. The introduction of the catheter gave considerable pain; and when a to-and-fro movement was given to the instrument a distinct sensation of its friction against a solid substance was communicated. On no occasion of the introduction of the catheter was more than an ounce or so of urine found in the bladder, and on all blood was present. The urine was alkaline and loaded with mucus and phosphates. After admission the patient's urinary symptoms increased in intensity; fever of a typhoid character set in; the amount of urine voided diminished from day to day, so as ultimately not to exceed an ounce or so; he became delirious and comatose, and died ten days after admission.

Autopsy.—The bladder was of the size and form of a cocoa nut, and had a solid resistant feel. On being laid open, there were exposed to view a number of cauliflower-like growths from its mucous membrane, the majority of which were attached by narrow peduncles; some few, however, were fixed; all grew from the inferior fundus of the organ, and one of considerable size obstructed the orifice of the urethra. There was no ulceration within the bladder, which contained but little urine. The left ureter in particular was distended with urine.

Dr. Fleming observed that it was most improbable that the amount of malignant disease shown in the preparation could have been formed in so short a space of time as that stated by the patient. He was disposed to consider it in the same light as those cases of stone in the bladder, in children especially, when the presence of a calculus will occasionally only at lengthened intervals, be productive of severe paroxysmal suffering.—*January* 30, 1864.

Pleuro-pneumonia, Pericarditis.—The morbid specimens which Dr. Law brought under the notice of the society were taken from the body of a female, aged forty-four, who had been admitted into Sir Patrick Dun's Hospital on the 21st of January, four days previous to which she had been seized with rigors, pains in the bones, and stitches in the left side. When admitted she was suffering from the most distressing dyspnea; her pulse was very rapid and weak, the skin burning hot, and her countenance expressed the greatest distress. The right side of the chest anteriorly was clear on percussion, and the respiration almost puerile; but the left was quite dull, and there was total absence of respiration, especially under the clavicle. The heart pulsated in its normal position. Posteriorly

the sound on the right side was clear and the respiratory murmur distinct; but on the left, while the sound was as dull as in front, feeble respiration could be heard. There was neither tubular respiration nor bronchophony. The side did not seem to be dilated. The patient lay in the supine position.

Dr. Law said he felt no small difficulty in arriving at a diagnosis. The suddenness of the attack made him suspect pleuritic effusion; still he could not easily understand why an amount of effusion sufficient to produce such extreme and complete dulness should cause neither dilatation of the side nor dexiocardia; nor was the dorsal decubitus the ordinary position in cases of pleuritic effusion. The stomach was not pushed down below its normal position.

It next occurred to him to inquire if the signs might not be due to a copious effusion into the pericardium; but the arched appearance (*voussure*) corresponding to the cardiac region, observed by Louis as a constant phenomenon in cases of copious pericardial effusion, did not exist here, nor was the diaphragm depressed. Pericardial effusion might so compress the lung posteriorly as to cause dulness on percussion and a weakness of respiration; but the character of the respiration which, in this case, was feeble and remote, was very unlike that which would have been caused by the air endeavouring to force a passage through the lung compressed against the side—a character of respiration with which large aneurisms of the thoracic aorta pressing on the lungs had made him familiar.

The only other view that remained to take of the case was that the signs were due to solidification of the lung. He confessed that he adopted this view only because it was more plausible than either of the others—but that it had its difficulties; for, although a lung may become completely solid in an inconceivably short space of time, yet it was usually under circumstances very different from the present.

The patient died six days from the date of her admission, the right lung having become affected with general bronchitis, probably in consequence of the excessive action that it was suddenly called on to perform.

On raising the sternum, a large quantity of straw-coloured serum, mixed with flocculi of lymph, was found in the cavity of the left pleura. The upper part of the corresponding lung was in a state of red hepatization, and a section of it exhibited numerous small purulent deposits. The rest of the organ, down to its base, and the base itself, were covered with a dense coating of lymph, and the corresponding parietal layer of the membrane presented a similar condition. The lung was adherent to the side of the pericardium, and also to the diaphragm, and lay towards the spine, separated from the side; but not condensed by pressure to any considerable degree. The right bronchial membrane was congested through all

its extent. The visceral layer of the pericardium was covered with a fine layer of lymph.

Dr. Law ascribed the absence of dexiocardia to the adhesion between the internal surface of the lung and the side of the pericardium. Moreover, the attachment of the lung to the diaphragm by preventing its change of place, as the position of the patient was varied, was the cause of the respiratory murmur being heard (although feebly) over the side, except at the upper part of the lung, which was in a state of hepatization.

He further observed that egophony was not present in this case, although the conditions described by Lænnec as essential for its production existed, viz., fluid interposed between the lung and the side. He believed that the fluid was concerned in the production of the phenomenon only so far as it caused a more or less condensed state of the lung. He did not think that in the early stage of pleuritic effusion fluid was interposed between the lung and side, as stated by Lænnec, but that where the patient was examined in the sitting posture, the lung, unless bound down by adhesion (as in the case just detailed), was pushed upwards until its further ascent was prevented by its root, and that it was only then that the fluid was interposed between the organ and the side. He had often noticed the phenomenon of egophony in the first or hyperemic stage of pneumonia, and which passed into bronchophony when hepatisation was complete; and again when the crepitus redux indicated the resolution of the hepatisation, and the return of the second to the first stage, the bronchophony in its turn gave place to egophony. He further remarked, in proof that the phenomenon was in no degree owing to any undulation; the fact that the very absence of vocal fremitus was regarded as the most certain diagnostic mark between pleuritic effusion and consolidation of the lung—conditions having so many physical signs in common, that this one was especially valuable.—*January* 30, 1864.

Scirrhus of the Breast.—Dr. Wharton exhibited a specimen of a large scirrhous tumour of the breast which he had removed from a woman in the Meath Hospital on the 20th of last month. She was in her fifty-eighth year, and had eight children, all of whom are alive, the youngest being fourteen years of age. About two years ago she felt pain in the right nipple, of a darting character, which continued for a period of about fourteen months, with longer or shorter intervals of remission. The nipple became retracted, and the areolar integument adherent. About ten months ago she discovered a small tumour below the site of the nipple. An apparently semi-purulent fluid oozed from the retracted nipple for some time; and upon its cessation the tumour began to grow more rapidly, and the pain assumed the lancinating character of scirrhous growths. The tumour was as large as an orange when the patient was

admitted. Her general health had always been good. The catamenia had ceased twelve years ago. Her complexion was florid, and quite free from any trace of that leaden hue so often met with in the cancerous diathesis. The nipple was entirely retracted; the superjacent integument was adherent, and a dense fibrous band could be felt running from the tumour towards the margin of the axilla above. The tumour itself was, for the most part, as hard as cartilage; but in some situations more yielding than in others, so as to lead to the impression that cysts had been developed in it, a combination, as well as that of abscess, occasionally met with. There was no disease of the lymphatic glands. The patient was remarkably fat, and weighed fourteen stone.

The operation of excision of the breast was performed on the 20th, the woman having been placed under the influence of chloroform. The only difficulty experienced arose from the great size of the breast, which measured eighteen inches in circumference, the extirpation of which necessarily left a wound not only of great depth, in consequence of the large quantity of subcutaneous fat, but also with edges so far apart that it was impossible to bring them together.

A section of the tumour exhibited the usual appearance of scirrhus strongly marked. Mr. Collis carefully examined its structure under the microscope, but the only peculiarity noticed was the absence of the usua cell-wall. The nuclei were numerous, and imbedded in a granular material.—*February* 6, 1864.

Acute Phthisis.—Dr. Law said that the specimen which he brought forward was one of acute phthisis pulmonalis, and he did not believe that the records of medicine afforded an instance of any case of the kind running its course as rapidly as this had done, its duration being only ten days. The subject of it was a boy aged five years. He was reported never to have been a strong child; he had had dropsy twice. He was, however, sufficiently strong to go to school, which he had attended four days before he was admitted into hospital. The day on which he became unwell, being a holiday at school, he went to play with other children, and did not return home till evening, when he was seized with shivering and general sickness. His symptoms becoming worse he was brought to hospital. When admitted he laboured under most urgent dyspnea; his face was deeply congested, his skin burning hot (calor mordax). Pulse 160 in the minute. The child was so restless and agitated that it was no easy matter to effect an examination of the chest. Anteriorly the fremissement of bronchitis could be distinctly felt through both sides. Posteriorly the sound was dull to percussion, from top to bottom, on both sides; and to the same extent there was bronchial breathing with large coarse crepitus. It seemed to be a case of almost universal broncho-pneumonia. The child seemed to improve a little at

first under treatment, but died on the sixth day after his admission into hospital, and the tenth from the beginning of his illness. Dr. Law observed that he was a strikingly handsome child, with a fine delicate skin, light hair, and blue eyes.

When he first examined the lungs, before making a section of them, he thought it was a specimen of the blue pneumonia of which so many examples had been recently brought under the notice of the society. However, a further examination soon proved its real nature, and revealed the most complete example of acute phthisis he had ever witnessed. Each lung, from apex to base, was in a condition of pneumonia, intermediate between the first stage, or that of hyperemia and red hepatization, with small tubercles scattered through them, but more crowded near the base. The anterior margins of the lungs were emphysematous, and there alone there were no tubercles. The bronchial mucous membrane was universally congested.

Dr. Law thought if ever a case deserved to be called one of acute phthisis, it was the one he had just detailed. It exhibited in a very striking manner the peculiarity of those tubercles being even more numerous at the base than at the apex of the organ, and deposited equally in both lungs. He took pains to ascertain if the child had any indication of chest affection before the recent attack, and was assured to the concontrary. He therefore felt warranted in assigning to it a duration of ten days.

Among Louis' cases of acute phthisis twenty days was the shortest time in which any ran its course. Dr. Law considered this case to be one of great pathological interest. It suggested the inquiry whether the pneumonia preceded the tubercles, or whether tubercles were deposited before the pneumonia; or were both the simultaneous result of a single pathological effort. He remarked, that although it is quite true that tubercles act as foreign bodies on the pulmonary parenchyma in the midst of which they are deposited, and produce around them an areola of pneumonia, and therefore may be supposed to be the cause of that pneumonia—still, while he admitted this, he also believed that pneumonia was the precursor of tubercular deposit; for, in many cases examined, in making a vertical section of the lungs of patients who have died of phthisis, while the disease has made most progress in the upper part of the lung, producing vomicæ, in a lower portion of the organ there was tubercular infiltration; a still more inferior portion being in a state of pneumonia without any tubercles. He believed that if life had been prolonged, this portion, in a state of pneumonia, would have become infiltrated with tubercles.

Dr. Law was disposed to consider the pneumonia and tubercular deposit in the present case, and in all cases of acute phthisis, as a simultaneous result of a single pathological effort, and very analogous to what occurs

in inferior animals, in whom disease runs a much more rapid course than in the higher, although the former are much less susceptible of it than the latter. Nor is it alone in running its course within a shorter time in the lower than in the higher animals that disease differs, but in this, that in the latter while there is a kind of gradual development of it, consisting, as it were, of distinct stages, in the lower animal these all run into each other. Thus, in the human subject, what is designated tubercular peritonitis is generally a pathological process consisting of two stages—the first the inflammation terminating in an exudation of lymph—in which, as the result of a second stage of the pathological process, tubercles are deposited. But between these two stages there is a distinct interval. Dr. Law had seen tubercular peritonitis in the inferior animal in which he was satisfied there was but a single pathological process. And in the pulmonary disease which affected the cattle in this country some years since it was no uncommon thing to find the lungs of animals that had died of a very few days illness, in a state of hepatization, with tubercles in the midst of the hepatized lung.

He regarded the pathological process in these instances as similar to that noticed in acute phthisis, when from peculiar cachexy disease hurried through its stages, between which, if any interval existed, it was hardly appreciable.—*February* 6, 1864.

Stricture of the Urethra.—Dr. Barton presented a specimen of organic stricture of the urethra and inflammation of the bladder. The subject of the case had been, upon several occasions during the last two years, a patient in the Adelaide Hospital. The stricture was gradually dilated until No. 8 catheter could be easily passed. Three days before his death he presented himself at the hospital for the last time, in a very bad state of health; he had suffered for several months from a paralyzed state of the right upper and lower extremities, which were swollen, blue, and cold; his pulse was weak and small, and he had extreme urinary irritation; mucus and purulent matter, with a small quantity of urine, being voided every half hour; but the immediate cause of death was softening of the upper portion of the spinal cord.

Upon examination, *post mortem*, the canal of the urethra was found so much contracted at the junction of the spongy and membranous portions, that it would only admit of the introduction of a small-sized probe; the stricture was three-quarters of an inch in length, and seemed to have had its origin in a deposition of lymph on as well as under the mucous membrane. Behind the stricture, the canal was dilated into a pouch; but there was no tendency to abscess or fistula. The muscular coat of the bladder was hypertrophied, and its mucous coat acutely inflamed; the matter was of a deep blood-red colour, covered with a thick adhesive mucus, and here and there whitish patches were seen, which, upon

examination under the microscope, were found to be owing to depositions of the phosphates.

In this case two causes, probably, were concerned in producing the very acute cystitis seen in the specimen, viz., stricture of the urethra and disease of the spinal cord.—*February* 13, 1864.

Dissecting Aneurism.—Dr. G. R. Symes exhibited a specimen of that form of dissecting aneurism first described by Dr. Shekleton, formerly Curator of the Museum of the Royal College of Surgeons in Ireland. It was found in a body brought for dissection into the Anatomical Theatre of Steevens' Hospital, by Dr. Swan, one of the demonstrators who was surprised to find that the aorta was composed, as it were, of two tubes. So regular were they, and of such equal size, that it appeared, at first sight, to be a congenital malformation; but on examination it became evident that the condition of the arterial tube was the result of a morbid process. The aneurism (as it has been termed) commenced at the ascending portion of the thoracic aorta, where the partition dividing the vessel into tubes was first seen; and in this situation the whole calibre of the aorta was dilated. Commencing at the aortic valves the aneurism dissected its passage between the middle and external tunics of the vessel downwards to the bifurcation of the aorta into the iliac arteries. Here the aneurismal tube terminated in the left common iliac by penetrating the partition between the two tubes, by an aperture of about one-third of an inch in diameter; that of the upper opening being one inch and a quarter. The vessel was very much diseased, especially at its bifurcation, where it was so disorganized that the blood was enabled to make its way back again into the general course of the circulation. The separation of the coats of the artery was not confined to the aorta, but likewise implicated many of its branches. The arteria innominata, the left subclavian, and the branches arising from the left side of the aorta, had their tunics separated from each other to a greater or less extent. The left ventricle of the heart was hypertrophied, and its valves were diseased. The body, that of a man of about fifty years of age, was anasarcous. No particulars of the history of the case could be ascertained.—*February* 13, 1864.

Tumours in the Brain.—Dr. M'Dowel presented, on behalf of Dr. M'Kinstrey, of Armagh, a tumour which formed in the substance of the brain of a lunatic, aged thirty-two, who had been under that gentleman's notice for two years, in the Armagh District Asylum, during the whole of which period his delusions were of an excited and violent character. In March, 1862, and for some time afterwards, he had attacks of severe and obstinate vomiting, which resisted all the usual treatment. In the following July he had similar attacks; and again in March, 1863; upon

the occasion of this, the third attack, it was observed that his sight had become impaired and his gait unsteady, and his hand trembled so much that he was unable to feed himself. In the month of June following, other symptoms of disease of the brain manifested themselves, such as stupor, passing into coma, strabismus, and paralysis of the left side of the body. In the latter part of the month he died, after a violent attack of convulsions.

Autopsy.—A lobulated tumour, apparently of a fibrous character, was found imbedded in the substance of the right anterior lobe of the cerebrum; it projected into the anterior cornu of the corresponding lateral ventricle. The cerebral structure surrounding the tumour was soft and pulpy. There was no other disease found in any part of the body. The tumour was of considerable size and density, and did not appear to be of a scrofulous character.

Dr. M'Dowel observed, that perhaps the most remarkable feature in the history of the case was the vomiting continuing for so long a period, as an isolated symptom, the sole indication of cerebral disease.—*February* 13, 1864.

PROCEEDINGS OF THE DUBLIN OBSTETRICAL SOCIETY.[a]

TWENTY-SIXTH ANNUAL SESSION, 1863-64.

Dr. Denham, President.

Dr. Halahan *On Difficult Labour—Forceps Cases.*

The growing experience of our grand science renders the fact more apparent every day that the prime duty of the practitioner is to watch rather than dictate to nature; and a recognition of this great principle constitutes the main difference between the quack and the true physician. The former is perfectly contented if he overcome the pressing symptoms with which he is called to deal, and is quite indifferent as to the secondary result of his treatment. The latter desires not only to overcome the disease, but to overcome it without danger to the present or after condition of the patient. He rushes, therefore, to no hasty results, but gently woos nature to her normal and true positions. If this principle hold respecting most types of what is more properly termed disease, far more does it hold with that condition of the female subject in which the efforts of nature are most remarkably and persistently displayed.

If the pains of a patient in labour can teach us anything they teach us this—that they are intended to accomplish and are actually accomplishing a definite and generally speedy result, that there is a more skilful Practitioner at work than the most practised obstetrician, and that there is no occasion to interfere till He asks our assistance. To find out when

[a] These Reports are supplied by Dr. Geo. H. Kidd, Secretary to the Society.

such is the case, and when it may be necessary for the skill of science to interfere, is, perhaps, the most responsible task which the physician has to perform. He has to answer two questions: first, whether he shall interfere or not; secondly (should he decide in the affirmative), what the nature of the interference shall be? And the difficulty of these questions is heightened by the fact that he may have the fate of two lives resting in his hands—that of the mother and the child. If, happily, both can be saved, his highest office is discharged; but if, unfortunately, he should be exposed to the miserable alternative of sacrificing either to save the other, his first duty must be to save the mother; his last (and that not until the faintest hope of rescuing the patient is destroyed) to save the child. It is a matter of great thankfulness that such extreme cases are very rare, that it is but seldom such dread issues are sent up to trial. But I trust, for the honour of our noble profession, that there is no recognized practitioner in midwifery who would dare to sacrifice the mother's life even with the certainty of saving that of the child, or would dare either, *in any case*, to employ instruments for the destruction of the child's life when he could (if he were acquainted with the very first principles of his profession) have used those which would have saved it.

I am not now, however, about to call your attention to the occasions on which the employment of the forceps is imperatively demanded; but merely to give you an outline of the cases in which the forceps and vectis have been employed in difficult labour, with the results, during the three years that I had the honour of being Assistant Master to the Dublin Lying-in Hospital.

No. of Cases	Hours ill	Length of Second Stage — Hours: 6	7	8	9	10	11	12	15	19	Came in in 2nd stage	Cranial Position: 4th×1st	3rd	3rd×2nd	Face	No. of Pregnancy: 1st	After	Cause of Interference: Inertia	Disproportion	Children: Alive M.	Alive F.	Dead M.	Dead F.	Result to Mother: Recovered	Died	Cause of Mothers Death: Peritonitis	Bronchitis	
1	7	1	–	–	–	–	–	–	–	–	–	–	–	1	–	–	10th	1	–	1	–	–	–	1	–	–	–	
1	11	1	–	–	–	–	–	–	–	–	–	1	–	–	–	–	6th	1	–	–	1	–	–	–	1	–	1	
1	16	–	·	1	–	–	–	–	–	–	–	–	1	–	–	1	–	1	–	1	–	–	–	1	–	–	–	
2	17	–	–	–	1	–	–	–	–	–	1	–	1	–	1	1	2nd	2	–	–	1	1	–	1	1	1	–	
1	21	–	–	–	1	–	–	–	–	–	–	–	–	1	–	1	–	1	–	1	–	–	–	1	–	–	–	
1	23	–	–	–	–	1	–	–	–	–	–	–	–	1	–	1	–	1	–	1	–	–	–	1	–	–	–	
1	24	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1	–	–	1	–	–	1	–	–	–	
2	25	–	–	–	1	–	1	–	–	–	–	1	–	1	–	2	–	2	–	–	–	2	–	2	–	–	–	
2	26	1	–	–	–	1	–	–	–	–	–	–	1	–	–	1	8th	1	1	1	–	1	–	2	–	–	–	
1	28	–	–	–	1	–	–	–	–	–	–	–	–	–	1	–	2nd	1	–	–	–	–	1	1	–	–	–	
1	29	–	–	–	–	–	–	1	–	–	–	1	–	–	–	1	–	1	–	–	–	–	1	1	–	–	–	
1	30	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1	–	1	–	1	–	–	–	1	–	–	–	
1	37	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1	–	1	–	1	–	–	–	1	–	–	–	
2	38	–	–	–	–	1	–	–	1	–	–	1	–	–	–	2	–	2	–	2	–	–	–	1	1	1	–	
1	39	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1	–	1	–	–	1	–	–	1	–	–	–	
1	43	–	–	1	–	–	–	–	–	–	–	1	–	–	–	1	–	1	–	–	–	–	1	–	1	1	–	
1	56	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1	–	1	–	–	1	–	–	1	–	–	–	
1	65	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1	–	1	–	–	1	–	–	1	–	–	–	
22	–	3	1	2	5	3	3	1	2	1	1	5	3	4	2	17	5	21	1	9	6	4	3	18	4	3	1	Vectis used 22 times in 3,700 cases; average 1 in 168.

Forceps and vectis used 78 times in 3,700 cases; average 1 in about 47½.

Forceps used 56 times in 3,700 cases; average once in about 60.

No. of Case	Hours ill	Length of Second Stage Hours: 1	2	3	4	5	6	7	8	9	10	11	12	14	16	17	18	Came in in 2nd stage	Cranial Position: 4th	4thXlst	3rd	3rdX3nd	No. of Pregnancy: 1st	After	Cause of Interference: Inertia	Disproportion	Threatened Convulsions	Fetal Heart becoming feeble	Strong Pains; threatening Rupture	Posterior displacement of right arm	Children: Alive M.	Alive F.	Dead born M.	Dead born F.	Result to Mother: Recovered	Died	Peritonitis	Metritis	Pneumonia	Disease of Kidneys	Sudden Collapse	Cause of Mother's Death	Craniotomy Cases
1	8	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	$5^{th} \times 6^{th}$	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—
2	12	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	1	—	—	—	2	—	—	—	—	—	1	—	—	—	—	—	—	—	—
3	13	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—
4	15	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—
5	16	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	1	—	1	—	—	—	1	—	—	—	—	—	—	—	—
6	17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7	18	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
8	19	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1	—	1	—	—	2nd	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—
9	20	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3rd	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10	22	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	1	—	1	—	—	—	1	—	—	—	—	—	—	—	—
11	23	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	1	7th	4	1	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—
12	24	—	—	—	—	—	—	1	2	—	—	2	—	—	—	—	—	—	2	—	—	2	4	—	—	—	—	—	—	—	4	1	—	—	4	1	—	—	—	—	—	—	—
13	25	1	—	—	—	—	—	—	—	1	1	—	1	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—
14	26	—	—	—	—	—	—	—	—	1	1	1	—	1	—	—	—	—	3	—	—	2	6	—	5	1	—	—	—	—	3	1	2	—	6	2	1	1	—	—	—	—	1
15	27	—	—	—	—	—	1	—	1	1	—	1	—	—	—	1	—	—	2	—	1	—	4	2^{nd}	5	1	—	—	2	—	—	4	1	—	—	3	2	1	1	—	—	—	—	—
16	28	—	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	1	2	—	1	—	3	—	1	1	—	—	—	—	2	1	—	—	1	2	—	—	—	—	—	—	—
17	29	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—
18	30	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—
19	31	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	—
20	32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	4^{th}	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—
21	33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—
22	34	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	—
23	35	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—
24	36	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	2	—	—	—	1	4^{th}	2	—	—	—	—	—	2	—	—	—	1	—	—	—	1	—	—	—	—
25	39	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	1	—	1	—	2	—	1	—	—	—	—	—	—	1	1	—	2	—	—	—	—	—	—	—	—
26	40	1	—	—	—	—	—	—	—	1	1	1	—	—	—	—	—	—	2	—	—	—	2	2^{nd}	2	—	—	—	—	—	1	—	—	—	2	—	—	—	—	—	—	—	—
27	41	—	—	—	—	—	—	1	—	1	1	—	—	—	—	1	—	—	2	—	—	2	1	6^{th}	1	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	1
28	47	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
29	49	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—
30	55	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1	—	—	—	1	—	2	—	—	—	—	—	2	—	—	—	1	—	—	—	—	—	—	—	—
31	59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—
32	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
33	62	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—
34	70	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—
35	72	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—
36	73	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	2	—	2	—	—	—	—	—	2	—	—	—	2	—	—	—	—	—	—	—	—
39	74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—
40	75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	2	—	2	—	—	—	—	—	2	—	—	—	2	—	—	—	—	—	—	—	—
41	76	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—
47	77	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—
49	78	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—
55	80	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—
59	84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	2	—	2	—	—	—	—	—	2	—	—	—	2	—	—	—	—	—	—	—	—
60	90	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—
62	96	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—
70	120	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	2	—	2	—	—	—	—	—	2	—	—	—	2	—	—	—	—	—	—	—	—
56	—	1	1	1	3	5	5	1	5	5	5	3	2	1	1	1	1	7	2	32	4	10	46	1	40	9	1	6	2	1	24	16	11	5	43	13	8	2	1	1	1	5

Thus, then, there were fifty-six women delivered with the aid of the forceps; the labours lasting from eight to seventy hours respectively, and the second stage from one to eighteen. Forty-six of the women were primiparæ, and ten multiparæ. Of the children, twenty-four males and sixteen females were born alive; and eleven males and five females dead-born. The mortality amongst the children sounds large, and requires some explanation—which is, that we never placed a child as born alive in whom we could not fully establish respiration, although the fetal heart beat for some time after birth; but for this fact we would have had only five children dead-born. Of the mothers forty-three recovered, and thirteen died; this, no doubt, is a large number, but, unfortunately, we had puerperal fever on two occasions; and upon one of these four of the thirteen women died within one week. Twenty-two women were delivered with the aid of the vectis, or one blade of the forceps; the labours lasting from seven to sixty-five hours respectively, and the second stage from six to nineteen hours. Seventeen of the women were primiparæ and five multiparæ. Of the children, nine males and six females were born alive; four males and three females dead-born. Eighteen of the mothers recovered and four died; one death occurred during a puerperal epidemic. Of the entire number delivered, with either forceps or vectis, interference was called for in fifty-eight instances for inertia of the uterus; in ten for disproportion of size between the pelvis and the head, in five of which the crochet had to be used to effect delivery, the forceps having failed; in one because convulsions were threatened; in three where the fetal heart was becoming feeble; in three for inertia of the uterus and the fetal heart becoming feeble; in two where strong pains were present and rupture of the uterus imminent; and in one where there was posterior displacement of the right arm. The face was the presenting part upon two occasions, in neither of which could the child be resuscitated.

In all these cases there was manifest and imminent danger, calling for instrumental interference. And this brings me to the consideration of a statement lately put forward from which I, in common with many others, feel compelled to dissent—that the use of the forceps is beneficial even in labour cases in which there is no immediate or prospective danger. The principle on which this assertion is based is as follows:—"That all pain is, *per se*, and especially when in excess, destructive, and even ultimately fatal in its action and effects," a principle which few will be in a hurry to question. It needs no Solomon to inform us that pain, when *in excess*, is destructive, and that "it exhausts the principle of life;" and a person of the average intelligence might, even without the aid of calculations, be led to suspect that prolonged parturient suffering might terminate in death. It is certainly not at all strange that, in cases of two hours labour, but one mother in 320 died; nor is it strange either, that in cases where

the labour exceeded thirty-six hours, one in every six perished. The conclusions attempted to be drawn are quite beside the real question—which is *not* whether, in cases of prolonged and difficult labour, artificial means should be resorted to to expedite delivery? *but* whether they should be employed when all is proceeding normally and quietly, and there is no reason to apprehend an unfortunate result? The principle, if granted, would prove too much. If pain *per se* (being destructive to life) should for that reason be immediately checked, safe practice would demand amputation for a persistent pain in the toe; a whitlow would require, at least, the excision of the part; a toothache the immediate extraction of even the last molar; and, were it not that decapitation is fatal, it might suggest itself to an ingenious practitioner as a speedy cure for a racking headache. It is, indeed, nothing short of a conceited display of real or imaginary professional skill to pester nature with impertinent interference, while she is doing her work steadily and surely; and it is perfectly absurd to contend that the pains of natural labour, however keen, are dangerous to life and require to be cut short. The almost *nil* mortality in such cases gives a distinct and positive denial to this monstrous statement; indeed every one is aware that the length of labour, *per se*, is a matter of comparative unimportance in estimating the danger of the patient. The real question concerns the duration of the second stage in which a few hours may lead to the appearance of alarming symptoms; whereas a patient may remain in the first stage for many hours without exciting any reasonable apprehension. To interfere, with instruments, in this stage, therefore, when all is proceeding regularly, even though it be slightly protracted, is to introduce an element of danger where none before existed. The same argument holds with respect to the second stage. If, where there is *no* danger, we (merely to lessen pain) do that which *may* cause injury to the patient by laceration of the soft parts, &c. (and it is admitted by the upholders of the principle of indiscriminate interference that such danger is not improbable), we are certainly conferring a very dubious benefit upon the patient who might prefer to be left to the course of nature, however painful, rather than be made a *corpus vile* for the exhibition of extraordinary obstetric skill. It may, to be sure, be replied—that it appears from statistics lately brought before this society, that no danger, of any sort, may be apprehended at any time from the use of the forceps, when employed by a skilful and accomplished physician; these statistics, however, are deficient in several most important respects:—First, the writer has not, with any show of clearness, distinguished between primiparæ and multiparæ cases; an omission of considerable importance, for the great mortality in child-birth takes place after first confinements. If we analyze Dr. Collins' valuable statistics brought forward to prove that the danger lies in the duration of labour, we find that of 7,050 women delivered within two hours, there

occurred twenty-two deaths; now deduct one-third of the entire deliveries as primiparous (amongst which were five deaths), and we have 4,700 left us as multiparæ; deduct two deaths from amongst these which resulted from rupture of the uterus, and one which occurred where the arm presented, and we then have fourteen deaths in natural and difficult labours amongst the 4,700, which gives an average of about one in every 336. We also find that of 1,314 women, delivered in over six and under twelve hours, fifteen deaths occurred; now deduct one-third as primiparous (amongst which there were eight deaths), and we have 876 multiparæ, of whom six died from rupture of the uterus, and one after the manual extraction of the placenta, leaving no death in 830 patients in natural or difficult labours. I may here remark that of the 15,850 cases in which the duration of labour has been mentioned, but 766 exceeded twelve hours. It is clear, from these facts, that the grand danger lies in primiparous confinements, and that, from obvious reasons, from the constricted and tense condition of the parts requiring longer time for dilatation which, if unnaturally forced, would lead to extensive laceration (and indeed we have the high authority of Dr. M'Clintock, that in using the forceps in such cases he had generally experienced more or less difficulty in saving the perineum), and also from the condition of the patient's mind, full of apprehension and alarm, frequently so intense as to endanger life. No argument worth anything can be adduced for the use of the forceps in natural conditions, from its employment in after confinements, as the generality of difficulties occur only in first cases. In after deliveries the patient will probably get on well in spite of the most officious and unnecessary meddling. Secondly, there is no statement of the proportion of the cases to the whole number in which the forceps was applied in the second stage. Thirdly, there is no statement as to the duration of the second stage. Fourthly, there is no statement of the exact circumstances under which the instrument was used. In the present stage of the matter, therefore, I am compelled to believe that the question relating to the use of the forceps must remain as it is, and be determined by the long and careful experience of the great leaders of our art in whose employment of the instrument there is this great advantage, that they never use it hastily or with the mere desire to expedite a natural labour. Where its use is evidently required they have no hesitation in employing it; but they shrink from a practice which may be disastrous, and, at the very best, can do nothing that nature cannot do infinitely better. Such anomalous statistics as I have noticed may, from time to time, appear; but the very fact that the conclusions drawn from them are so startlingly different from those dictated by the experience of our great hospitals and that of the heads of our profession, must render us more than ordinarily careful in assenting to conclusions which might lead to a serious loss of life from their adoption by weak and inexperienced practitioners.—*February* 13, 1864.

Dr. Hely *on a Case of Congenital Malformation of the Rectum; Operation Unsuccessful; Recovery.*

A lady, D. W., confined of a full-grown female child, at 2 30, on the morning of the 15th October, 1863.

The nurse discovered, twenty-one hours after delivery, that the child had, as she termed it, "no fundament." I was sent for to see the infant, as it had hiccough and slight straining. On examination I found it had perfect occlusion of the anus; no protuberance, nor the slightest discolouration of the skin where the aperture should be. It was perfectly plane and even on the surface; there was no particular sensation on applying the finger. I assumed, from these appearances, the intestine terminated within the pelvis. However, in consequence of the hiccough and straining, I felt that something should be done towards relief, and consequently made an incision, about an inch and a-half long, in the locality where the aperture ought to be, with a sharp-pointed scalpel, and inserted the point of the scalpel an inch into the soft substance. I then introduced a director, but could not find any meconium. I next applied a tent of lint, moistened with oil, into the wound, and ordered a teaspoonful of castor oil to be given. There was very little hemorrhage; the child passed a comparatively quiet night. Thirty-three hours after birth, no meconium having passed, and fearing that sickness or vomiting might set in, I had a consultation with Dr. M'Clintock; and, thirty-four hours after birth, we examined the parts, and found them in the same condition as I had left them—no appearance or prominence indicating the presence of confined meconium. Deeming it, however, necessary, we introduced a trocar in through the already made wound, and passed it nearly two inches upwards, and slightly backwards, with the same result as the former operation. We then introduced a director into the vagina, and, moving it about towards the upper and back part, there appeared a slight discoloration on the director. Frequently introducing it, and turning it round, meconium appeared. We then drew out as much as possible, and, after some time, injected that part of the vagina with warm water; a great deal of meconium came away. We then introduced a male catheter, and it passed up into the intestine about four or five inches. We injected through it two ounces of warm water, and a great deal of meconium and fecal matter came away. We next placed a pledget of lint, smeared with oil, into the wound, and applied a linseed-meal poultice over all, and ordered a dose of castor oil to be given immediately. At 8 o'clock, p.m., the bowels were opened three times, by the castor oil, through the vagina; the baby has taken the breast well, and is apparently suffering little or no pain.

October 17th, 11 o'clock, a.m.—The wound looks well; no hemorrhage of any account. The bowels were moved five times since my last visit, *through the vagina.* The child passes water well through the urethra; in all other respects the infant is well-formed and healthy.

October 18th, 11 o'clock, a.m.—The infant passed a good night; bowels moved three times *through the vagina.* I introduced a pledget of lint, quill-shaped, steeped in oil, through the opening, and left it there, with directions to the nurse, that when the bowels were being acted on, to remove it, and afterwards replace it with a fresh piece, as described.

October 19th.—Bowels moved three times through the vagina; passed a small-sized male catheter two inches into the opening this day, and left it there for two hours.

October 26th.—Child thriving until this day, when she was peevish, and would not suck. Bowels confined; got a dose of castor oil this morning, which did not act. In the evening I passed the same catheter fully ten inches through the intestino-vaginal opening, and gave an injection of thin barley gruel with castor oil. Nothing, for the present came away. Ordered a grain of calomel to be given every hour.

October 27th.—Bowels moved twice during the night; of greenish colour. Baby sleeping quietly.

December 15th.—The infant is now nearly four months old, and defecation goes on regularly *through the vagina.* She is a fine healthy child; the wound has perfectly healed, from the bottom, without any unpleasant symptom.

The remarkable termination to this case has induced me to bring it before the society; and I would feel obliged by any advice you would recommend me to adopt as to its future and further recovery. I find, in looking over the records of obstetrical science, that the recovery of such cases is very, very rare. I find that the causes of this malformation are unexplained. I have sought to discover some cause for this peculiarity in this particular case, but am unable to trace it to any assignable cause. The mother merely states she only got one fright during her pregnancy, and that was, seeing one of her children cut on the arm by a broken basin.

Dr. Keiller communicated, to the Edinburgh Obstetrical Society, two interesting cases:—"The first was operated on with temporary relief; in six weeks the operation was repeated thrice. When feculent matter ceased to pass by artificial anus it became obliterated, and the matter passed by urethra. This ended in death. In the second case the child lived twelve weeks, and evacuated the feces by the mouth. No operation was attempted. In both these cases the *post mortem* disclosed that there was no rectum."

Dr. Byrne, a member of council of this society, has reported two cases in *The Dublin Quarterly Journal*, August, 1862. The first case the anus was perfect; but a band formed across the rectum, a little above the anus. The second case no anal opening existed. The operation was tried, but without success; the child lived only sixty hours. He, however, is in favour of an operation being tried.—*February* 13, 1864.

The SECRETARY read the following communication from PROFESSOR MURPHY, of University College, London—

On the Comparative Claims of Craniotomy and the Cæsarean Section in a certain class of labours, and on the use of a new Pelvimeter.[a]

The following cases may prove interesting as aiding to prove the important question when the Cæsarean section may be justly adopted. It has been stated by the writer, in his published lectures, that the cases there quoted seemed to establish the rule, "that in the ovate deformity of the pelvis, if the conjugate axis be less than two inches craniotomy should not be attempted, but an effort made by the Cæsarean section to save the child."[b] The cases now brought forward afford additional evidence to prove the great danger of craniotomy when the disproportion is so great, and lead us to doubt the propriety of destroying the child by an operation which seems as likely to destroy the mother.

Craniotomy, as compared with the Cæsarean section, seems to the writer in these cases equally dangerous, and, therefore, he would feel it his duty to adopt the latter operation as being the best means of saving, at least, one life.

The cases now quoted were brought into University College Hospital, it might be said, at the eleventh hour, to have the Cæsarean section performed; but in both cases the children were already dead, and, therefore, craniotomy was preferred as being generally considered less dangerous to the mother; but had the children been alive the writer would have felt perfectly justified in having them removed by the Cæsarean section. It is only necessary to compare these cases with that of Mr. James Hawkins, of Newport, to form an opinion.[c]

M. A., a dwarf, four feet one inch high, was taken in labour of her first child on Tuesday, December 22nd, at about 12 o'clock in the day.

The midwife who was engaged to attend was at once sent for; she came about 3 o'clock, tried her pain, and said that she thought all was going on well. She left, and was again sent for at midnight, but, being engaged with a labour, she did not arrive until 3 o'clock on Wednesday morning.

December 23rd.—The midwife remained until 3 30 in the afternoon, and finding no advance she sent for advice. A medical practitioner arrived, who, finding a difficulty, left the patient, about 5 o'clock, to obtain a second opinion. Having succeeded, both gentlemen remained with the patient until about 8 p.m., and then left her. The patient's friends, who were, no doubt, anxious and indignant, stated

[a] The author was not aware, when this Paper was written, that a similar instrument had been contrived and published by Dr. Lumley Beale, of Birmingham.

[b] Murphy's Midwifery, Second Edition, p. 336.

[c] Medical Times and Gazette, Vol. xxxvii., pp. 488, 489.

"that from 8 o'clock on Wednesday evening until past 11 on Thursday morning they neither heard nor saw anything of the doctors."

The medical practitioner in attendance then arrived, with another gentleman, who, having made an examination, had the patient removed from her bed to a table, where she remained for about twenty minutes, and was then replaced. This, perhaps, was for the purpose of a more accurate examination, but the result was that she was sent to University College Hospital about 5 in the afternoon, in order to have the Cæsarean section performed.

Messages were sent to the writer, and Mr. Marshall, surgeon to the hospital, and both arrived about half-past 5 o'clock.

An examination being made, it was ascertained that the os uteri was dilated to rather more than the size of a tea cup; was thick and tender, the head protruding through it, with the bones strongly overlapped.

It was evident that the child was not only dead but putrid. The promontory of the sacrum could be felt with the fore-finger easily, proving the greatly diminished space in the conjugate axis.

In consultation with Mr. Marshall I objected to have the Cæsarean section performed to remove a putrid child, and, therefore, undertook the rather arduous task of extracting it by craniotomy. The head was easily perforated, and the brain removed; the parietal bones at once separated and were taken away; the crotchet (Churchill's) was then fixed in the frontal bone, and again in the occipital, acting alternately, so that by great care and equal difficulty the head was brought into the cavity of the pelvis, but no force could advance it farther; at length, after several efforts, the head separated from the neck. I succeeded in bringing down one arm, fixed a tape round the wrist, and hoped by this means to extract. But no; the shoulder was almost pulled out of its socket without effect; I therefore sought for the second arm, and succeeded in getting it down; pulling, then, on both, the body was at length extracted.

The cause of the difficulty was immediately revealed. The abdomen was enormously distended with flatus, occupying the brim in such a manner as to resist every effort to extract the head or the body until both arms were brought down.

This patient was altogether fifty-three hours in labour—very much exhausted and depressed; she had gone through a very severe labour, and had other causes of mental anxiety. She had some bronchitis on admission, but it did not assume a serious aspect until she was delivered. She was immediately given a composing draught.

December 25th.—The vagina was carefully syringed with decoction of poppies, and the solution of the hydrochlorate of morphia (M. xv.) given in wine every second hour. There was no tenderness of the abdomen, but increased difficulty in respiration. The morphia and wine were suspended, and every means used to allay the difficulty of breathing, but without effect. She sunk on the morning of the 26th.

On examination after death the bronchi were found filled with a great quantity of mucus, the walls of the tubes being highly injected. A section of the lung exhibited some spots of incipient lobular pneumonia. The liver and heart were healthy; no evidence whatever of inflammation either in the peritoneum or the uterus. Both kidneys were flabby and friable, the capsules easily separating; the cortical substance was very wide, the medullary indistinct, and the pyramidal broadly marked, showing evidence of albuminuria.

The pelvis, having the ovate deformity, was carefully measured. The conjugate axis, from sacrum to pelvis, was $2\frac{1}{4}$ inches. The death in this case may be attributed to bronchitis; but occurring, as it did, twenty hours after delivery, it may, perhaps, be better explained as the result of shock to a constitution already diseased.

Shortly after this case occurred, another of a similar kind presented itself :—

H. S., aged twenty-five, a charwoman, of low stature, was taken in labour, Tuesday, January 5, 1864, in the evening, with the usual premonitory symptoms—pains and cramps in the abdomen—which continued, with more or less force, all that night. Severe and regular pains set in on Wednesday, and continued Wednesday night and Thursday, when, at 5 30, p.m., her sister sought for medical advice.

A medical gentleman soon attended, and remained with the patient until about 7, p.m., when he left.

Friday, January 8.—At 3, a.m., the patient's husband went for the practitioner, who at once attended, and remained until 7 o'clock. No progress being made, he left, and returned at mid-day. Finding no difference, he determined on a consultation.

At 4, p.m., two medical gentlemen returned; and, after a consultation, determined on the operation of craniotomy. The head was perforated, and an attempt made at delivery, but, after two hours' unsuccessful efforts, they determined that the fetus should be removed by the Cæsarean section. For this purpose she was sent to University College Hospital, about 10, p.m.

The writer was sent for, and arrived about half-past 10, p.m. Having made an examination, he found the promontory of the sacrum equally within reach of the fore-finger, as in the former case; the broken bones of the head occupied the brim. The contraction of the brim was apparently the same, and the child dead. He, therefore, could not consent to the removal of a dead child by the Cæsarean section.

The extraction of the child by the crotchet was undertaken. The bones of the head being so much compressed there was some difficulty in getting the crotchet within the cranium; at length it was introduced, and fastened on the frontal bone. Immense force was required to move the head at all, but at length it advanced very slowly. The frontal bone

gave way. The crotchet was then fixed on the occipital, and, by pressing the bone with the fingers strongly against the instrument, it held sufficiently long to get the head past the brim of the pelvis. Its further advance was then more easy; but, in order to make it secure, an arm was brought down, and the child removed. The operation occupied two hours.

The patient, although very much exhausted, bore the operation very well. An anodyne was ordered, and poppy fomentation for the vagina.

January 9, 8, a.m.—The patient slept well; skin, moist; pulse, 170. She takes nourishment (beef tea, milk, wine) well. A bark mixture was ordered, with sesqui-carbonate of ammonia in effervescence.

January 10.—She seems going on favourably. The surface was sponged over with warm sponges, and the same treatment continued.

January 11, 4, a.m.—Mr. Roberts, the obstetric assistant, was called by the nurse, who found the patient in a state of great exhaustion. The pulse was very feeble. Stimulants, however, were freely administered, and after some time she rallied. At mid-day she was in a great degree restored, and slept well that night.

January 12.—She seems much better; the skin is moist; pulse, 140, with some slight delirium, and pain in the abdomen. The lochia are suppressed.

January 13.—The patient has had some sleep, and seems refreshed. She went on during the day without any unfavourable symptoms. In the evening she was more herself; pulse, 140, soft and compressible; no pain in the abdomen, but some symptoms of bronchitis have shown themselves.

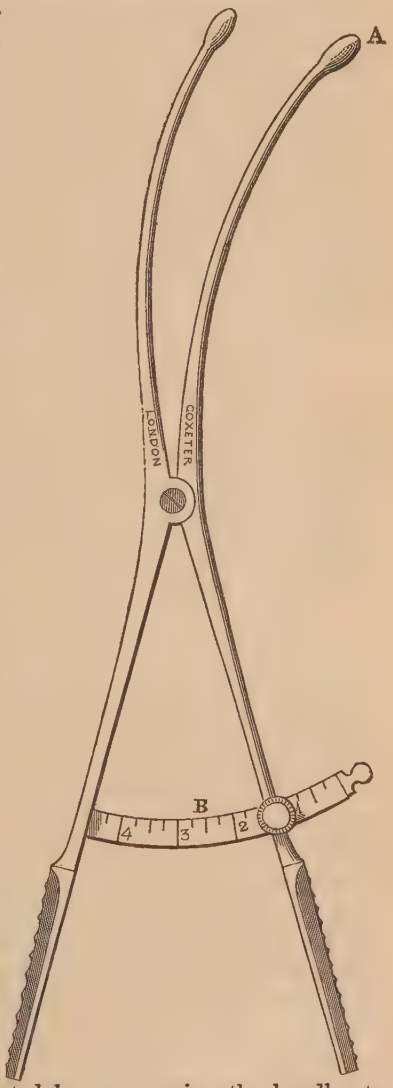
January 14.—Bronchitis much increased, with great difficulty of respiration, which could not be relieved by all the efforts used. She sunk at 6 30, p.m.

January 15.—*Post-mortem* examination.—Lungs (left): bronchial tubes highly injected; small masses of pneumonia throughout the lower lobe. Right: at the base numerous patches of hemorrhagic extravasation under the pleura. Bronchial tubes highly injected; the lower lobe or section showed large masses of pneumonia, which broke down easily under the finger. Intestines much distended with flatus; no sign of peritonitis except in the neighbourhood of the uterus, where a small patch of lymph was found, low down on the left side, and the nearest coil of intestine was united to it by two slight adhesions. The uterus was well contracted and healthy. Pelvis: the conjugate axis, from sacrum to pubis, was $2\frac{1}{3}$ inches.

In this case there was a much more favourable prospect of recovery than in the former. Bronchitis suddenly seized her on the fifth day, and she sunk under it. She might, however, have resisted the attack had not her constitution been previously exhausted by her labour and its results. It occupied, from its commencement on Tuesday, 5th, seventy-two hours. She also underwent, before her admission into the hospital, an

operation which is stated to have occupied two hours, and in the hospital two hours more were consumed in her delivery. This was sufficient to produce great exhaustion, and evidence of it was given, before the attack of bronchitis, by the sudden faintness which seized her on the 11th. The contraction of the brim of pelvis was greater than in the former case.

Both cases prove the great danger of craniotomy when the disproportion is so great, and seem to justify the rule, that when the conjugate axis of pelvis is two inches, or less, the Cæsarean section should be performed *to preserve the child.* In these cases the children were dead, and therefore they were delivered by craniotomy, as being considered a less dangerous operation to the mother. The difference in the danger in such cases is, however, very slight; and, when such is the case we are justified in the endeavour to save the child's life when that of the mother is in such hazard. The danger of delay is equally obvious. If the medical attendant knew, in the first instance, the exact disproportion and its consequences, a consultation would be at once determined upon, and the proper steps taken; but, unfortunately, not knowing the exact disproportion, there is the disposition to trust too much to what "time will bring forth," and either operation is commenced a great deal too late.



To obviate this objection the writer has had a pelvimeter made, which in principle is extremely simple, can be very easily applied, and may be carried in the ordinary instrument-case.

Two small blades are so applied as to form a rod a little thicker than the uterine sound. These are separated by compressing the handles to which they are applied, and the distance between them is marked on a scale attached to one of the handles.

When the examining finger is introduced, and touches or comes near to the promontory of the sacrum, the instrument can be easily passed up to and beyond the finger. The blades separate by the pressure of the handles until one is arrested at the pubis.

The exact distance between the pubis and sacrum being thus ascertained, a small pivot can be screwed on the scale, so as to prevent any moving of the handles, and fix the space marked. When the instrument is withdrawn the distance between the blades may be again measured to prove the correctness of the scale.

This instrument may be applied to any pelvis, but it is especially intended for that having the ovate deformity, where the head cannot enter the brim, and it is a question whether craniotomy or the Cæsarean section should be performed. The importance of having such a question decided without unnecessary delay has led the writer to propose this instrument, which he trusts will be found to answer its purpose.—*March* 12, 1864.

Memoir on the Pathogeny of Strabismus. By PROFESSOR F. C. DONDERS, of Utrecht. Translated by E. PERCEVAL WRIGHT, M.D., F.R.C.S.I., Surgeon in charge of the Ophthalmic Dispensary of Steevens' Hospital.[a]

(*Continued from* Vol. xxxvii., No. 73, page 239.)

II. ON CONVERGING STRABISMUS.

EXPERIENCE teaches us that converging strabismus is, in by far the great majority of cases, accompanied by hypermetropia. Out of a hundred and seventy-two cases which we have examined, hypermetropia of the nondiverging eye was proved to exist in a hundred and thirty-three; in nine myopia existed, in five to so high a degree that the form of the extended, and but slightly movable eye-ball allowed of no other position; in thirteen cases a difference in the refraction of both eyes was noticed; in five inflammation was the cause; in at least five paralysis had occurred; thrice the strabismus was complicated with congenital cataract, and twice with nystagmus. From this we see what a prominent position is occupied by hypermetropia, occurring, as it does, in more than seventy-seven per cent. of the cases; and yet, I am convinced, that if we could

[a] This Translation is made from the original Memoir in the *Archiv für Ophthalmologie* Herausgegeben von Arlt, Donders, and A. von Graefe. Band. 9, Abth. 1. Berlin, 1863. With a few additions from the French Translation by Dr. van Biervliet, in the *Annales d'Oculistique*. Tome L, 3e and 4e Livraisons. Octobre, 1863.

investigate, indiscriminately, all the cases of converging strabismus which occur among a given population, a still larger proportion of hypermetropia would be found. In the first place cases of but slight converging strabismus present themselves but rarely to the ophthalmic surgeon, and yet these are precisely those in which hypermetropia is the sole cause of the squint. If inflammation or paralysis exists, or if any peculiar complications present themselves, then the patient does not neglect to seek assistance; and so, proportionally, a larger number of these exceptional cases are observed. In the next place, many cases are registered as "converging strabismus" which ought not to be referred thereto, such as those of recently acquired paralysis of the abductor muscle, and the too strongly converging, almost immovable, myopic eyes, &c.; and lastly, it is more likely that a few ordinary cases have been neglected, than those extraordinary ones, whose pathogeny has not yet been quite cleared up. I do not, therefore, hesitate to declare, that it is quite exceptional, to find converging strabismus without hypermetropia.

It is not with the highest degrees of hypermetropia that strabismus is generally connected. At least in young individuals hypermetropia may be totally latent, having been involuntarily neutralized by an increased effort of accommodation, and appearing only after artificial paralysis of the accommodation. On a former occasion[12] I have mentioned the fact that converging strabismus is generally dependent on hypermetropia, and I had imparted these views to many of my colleagues *viva voce*. This induced Dr. Pagenstecher and Dr. Saemisch[13] to turn their attention to this subject, and they inform us that in sixty-two cases of concomitant converging strabismus hypermetropia was found in only twenty-nine. This result I readily accept; they have in reality only detected manifest not latent hypermetropia, and in consequence of this they are themselves convinced, "that slighter degrees of hypermetropia have been certainly overlooked, stronger ones have been under-valued." I see, therefore, in their communication a complete confirmation of my views; for I have not been able myself to directly establish *manifest* hypermetropia in much more than fifty per cent. of the cases.

The most frequently occurring hypermetropia equalled $\frac{1}{30}$, $\frac{1}{10}$, rarely $\frac{1}{7}$ or more. Absolute hypermetropia did not exist in the majority of cases; but it attained in young individuals a considerably higher degree. In manifest hypermetropia of $\frac{1}{30}$, the absolute hypermetropia might be estimated at $\frac{1}{15}$, or something more; when in the cases of a complete absence of manifest hypermetropia, the absolute hypermetropia was estimated during paralysis of accommodation, it still rarely remained under $\frac{1}{15}$.

Since, therefore, hypermetropia as a rule exists in all cases of converging strabismus, no other explanation is conceivable than that hypermetropia is the cause of the squint. It is, at any rate, the primary anomaly in the

construction of the eye to be sought for, and is originally peculiar to it. Strabismus is a secondary condition, which only arises some years after birth. In a very early stage, or at the very commencement of the so-called periodical squinting, it can be indisputably proved that hypermetropia is already present, so that it must precede the squinting; and if we add to this that *incipient* squinting immediately begins to disappear if the hypermetropia be neutralized by a proper convex glass, then we must inevitably conclude that it is the hypermetropia that causes the strabismus The only question remaining is—How can it do this? There is no difficulty in answering this question.

In order to see distinctly, the hypermetropic patient must make great efforts of accommodation; and this while looking at objects at every distance. Even while looking at very remote objects, he must endeavour, by an effort of accommodation, to overcome the hypermetropia; and in proportion as the object gets nearer, so must he add to this effort that which would be required if the eye were a normal (emmetropic) one, so that looking at near objects requires a great deal of effort. Now, there exists a certain connexion between accommodation aud the convergence of the lines of vision. The stronger one can converge the more powerfully can he bring into operation his faculty of accommodation. A certain tendency to increased convergence cannot be, therefore, altogether absent in the case of any exertion of the accommodation. This tendency exists in every hypermetropic eye. One can be easily convinced of this by holding negative glasses before emmetropic eyes, and bringing them thereby into a hypermetropic condition. It will then be found that, at each effort to see distinctly, double images threaten simultaneously to present themselves, and that there is, in short, only the choice between indistinct vision and squinting: this conflict probably existed in all hypermetropic eyes, without their being conscious of it.

Hypermetropia is a very widely diffused anomaly. I am persuaded that it occurs still more frequently than myopia. If then converging strabismus be, as a rule, a consequence of hypermetropia, it is evident that hypermetropia very frequently exists without causing squint. One might even say that strabismus develops itself but in a comparatively very small number of cases of hypermetropia. This need, however, by no means surprise us. In fact, the desire to see an object, simply with both eyes, at the same moment, makes itself, as a general rule, energetically felt; the direction of the lines of vision is thereby strongly marked. Many years ago I convinced myself of this fact by my experiments on the effects of prismatic glasses.[14] If we place before a normal eye a weak prismatic glass, with the refracting edge turned inwards, then looking at a fixed object, it at first appears double; but then an increased convergence is at once and involuntarily called into play, which causes an union of the double images; if, in a moment or two, we now remove

the glass, double images again make their appearance, and as speedily, through a diminution of the convergence, disappear, coalescing, so to speak, of themselves. The movements here alluded to take place, in fact, so spontaneously, that the person is not even conscious of it. This aversion to double images, or rather this instinctive clinging to single binocular vision, preserves the hypermetropic eyes of most people from squinting, they preferring rather to sacrifice pleasant, easy, and sharp vision than to suffer different objects to pourtray their images on the two yellow spots.

We herein discover the reason why the majority of hypermetropic eyes do not squint. Let any person with hypermetropic eyes cover one eye with his own hand, both eyes, however, being open, and in most cases the line of vision of the covered eye will very soon deviate inwards. The same thing will happen if a negative glass is held before a normal uncovered eye. The question which now naturally arises is, what circumstances, in the case of hypermetropic people, must co-operate to cause the existence of squint? They are of two kinds—*first*, A, those which diminish the value of binocular vision, and *secondly*, B, those which facilitate convergence.

A. To the first belong—

I. *A Congenital Difference in the Visual Power, or in the Refraction of the Two Eyes.*—In hypermetropic people, sharpness of sight is often deficient in one or both eyes. This is partly to be ascribed to astigmatism, partly to an imperfection of the retina, as yet unaccounted for. If one eye is affected, then the image in this eye will not, in the case of too great convergence, be very troublesome.

The same is the case when the degree of hypermetropia is rather high in the one eye, and the image in this eye is consequently less distinct. In both these cases strabismus is most likely to develop itself; but the disposition is greatly increased, when, as is often the case, both circumstances are united in the one eye, viz., diminished sharpness of vision, and a high degree of hypermetropia. If the eye has been long in a state of squint, then, as a consequence of the strabismus, a secondary diminution of sharp-sightedness has arisen, to which we shall hereafter refer. Even then, however, a high degree of hypermetropia can, with the help of the ophthalmoscope, be proved to exist.

II. *Spots on the Cornea.*—It is often observed in strabismus that the squinting eye, or indeed both eyes, exhibit opacities or spots on the cornea. Very recently Pagenstecher and Saemisch directed attention to this frequent occurrence of spots on the cornea in cases of strabismus. It does not, however, appear to me likely, that spots on the cornea would of themselves alone be sufficient to cause strabismus. Even if the image in the unaffected eye should be less perfect, still experience teaches us, that even then the preference is given to binocular vision; and it is not very easy to comprehend how that one of the eyes should be disposed to

diverge solely for the purpose of allowing a totally different picture to fall on its yellow spot, rather than allow a picture, slightly different, it is true, but of the same kind, to do so. Ruete[15] has, on good grounds, decided, in this way, the controversy between Beer and Joh. Mueller. It is, however, quite another matter, whether, supposing hypermetropia to be present, spots on the cornea, or other opacities, will not increase the tendency to strabismus; and whether the great indistinctness of the image will not render the diplopia less disturbing, as well as diminish that aversion to it, which is the great safeguard against strabismus. This I am very much disposed to believe; at least I find corneal spots in hypermetropic patients with strabismus very much more frequently than in those without it. It is true that there may still exist another connexion between strabismus and spots on the cornea, to which allusion has been already made by Ruete.[16] An inflammation, for example, the cause of the corneal spots, may, at certain stages, extend to some of the muscles, and bring on, in the first place, a spasmodic and then an organic contraction of the muscular tissue. I myself have already recorded such cases. They are, however, comparatively rare, and are of but small importance in accounting for the preponderance of spots on the cornea in hypermetropia, accompanied by strabismus.

B. To the second belong—

I. *Peculiarities of Form or Innervation of the Muscles, hence Easy Motion of the Eyes Inwards.*—A congenital insufficiency of the recti interni muscles not unfrequently occurs. It is easy to believe that the reverse may also occur; and, indeed, many eyes can converge, without any great effort, as much as 3″, or even 2″ and 1″·5 from the eye. It may be presumed that the shape and position of the globe, as well as the structure and innervation of the muscles, exercises a great influence on the amount of convergence possible.

While insufficiency of motion inwards is a preservative against converging strabismus, a great increase of mobility in this direction will increase the tendency to this form of squint. By many it can be easily produced, in a high degree, by an exercise of the will; by others not at all, or only with the greatest difficulty; and if it be said that such voluntary squinting, frequently repeated by a desire to imitate, or from a habit of mocking, has given rise in some persons to a permanent squint, I readily grant it, on condition that, at the same time, hypermetropia existed. Moreover, I have never been able to convince myself that a particular disposition to strabismus was hereditary; but in this I wish to be properly understood. Hypermetropia is, to a very great extent, inherited; it is rare, in cases where the eyes are hypermetropic, not to find hypermetropia present in one or other of the parents, and also in some of the other children; but whether this hypermetropia be complicated or not with strabismus in the parents, has, at all events, a very

slight influence, if any, in the development of the same anomaly in their hypermetropic children. If there exist in a family a case of converging strabismus, we may be almost sure that hypermetropia is present in some other of the members; but it has seldom fallen under my notice to find the majority of the hypermetropic eyes in the same family squinting.

II. *The Relation between the Line of Vision and the Axis of the Cornea.*— We have seen above that in the case of hypermetropic patients in general a more than ordinary divergence of the corneal axes is required, in order to give a parallel direction to the lines of vision, whence apparent diverging strabismus arises in so many hypermetropic patients. On the other hand, we know that the majority of eyes are only with difficulty brought to diverge; a weak prism held before the eye, with the refracting angle outwards, is sufficient to produce double images, which most people are unable to overcome by a divergence of the lines of vision. Even for the sake of single vision, many cannot succeed in diverging their eyes a few degrees. It may, therefore, be easily taken for granted that when, for simple vision, a more than ordinary divergence of the optic axes is required, such divergence will not be very easily effected. This takes for granted, that in looking at near objects it will be easy to converge too much. The causes that were treated of in Section I. promote convergence in an absolute manner. The connexion between the line of vision and the axis of the cornea, in hypermetropic people, has relatively the same result. Now if, on looking at a greater distance, the divergence of the corneal axes remains often too feeble; then, on looking at a near object, under the influence of hypermetropia, the convergence will be relatively too great. The conditions requisite for the development of strabismus are thus obtained. I have often, in reality, observed, that in squinters, after tenotomy, a considerable divergence of the corneal axes was requisite to make the lines of vision take a parallel direction. Often the eyes are apparently perfectly well directed; and still it will be remarked that, on looking at a distant point alternately with either eye, covering the other eye with the hand, the opened eye must still make each time a slight movement outwards, in order to fix the distant object. Sometimes this is the case in so high a degree, that for binocular vision at a distance, a disfiguring divergence is requisite. This led me to conjecture whether, since in general the large value of the angle α in hypermetropia promotes the existence of strabismus, an unusual largeness of this angle might not predispose, in a special manner, to it also. In order to verify this conjecture the angle α was measured in ten cases of converging strabismus. The measures were taken, for the most part, acccording to the method described above, by our assistant Mr. Hamer, with an exactitude which is peculiar to him. The following table, contains the results:—

TABLE I.

Persons	Sex	Age	Deviation	Eye	Refraction Hm.	Refraction H.	A.	S	Remarks
1	m	23	Str. c. Od.	Od.	$\frac{1}{10}$?	$\frac{1}{8}$	5°·8	0·2	
				Os.	$\frac{1}{28}$	?	6°·5	0·67	
2	m	15	Str. c. Os.	Od.	$\frac{1}{12}$	?	6°	1·	
				Os.	$\frac{1}{12}$	?	7°	0·28	
3	f	25	Str. c. Od.	Od.	?	?	6°·75	0·1	
				Os.	$\frac{1}{40}$	?	6°·5	0·85	
4	m	16	Str. c. Od.	Od.	?	?	?	0·01	Could not fix
				Os.	in H $\frac{1}{28}$? in V $\frac{1}{30}$	in H $\frac{1}{12}$ in V $\frac{1}{24}$	7°	0·45	
5	f	23	Str. c. Od.	Od.	in H ? in V ?	in H $\frac{1}{24}$? in V $\frac{1}{40}$?	8°	0·2	As.
				Os.	$\frac{1}{20}$?	in H $\frac{1}{11}$ in V $\frac{1}{16}$	7°	0·5	As.=$\frac{1}{35}$
6	m	12	Str. c. altern.	Od.	? ?	in H $\frac{1}{16}$ in V $\frac{1}{18}$	7°·5	0·4	As.=$\frac{1}{16}$
				Os.	? ?	in H $\frac{1}{10}$ in V $\frac{1}{20}$	8°	0·25	As.=$\frac{1}{20}$
7	m	19	Str. c. altern.	Od.	$\frac{1}{12}$	$\frac{1}{6}$	8°·5	0·66	
				Os.	$\frac{1}{16}$	?	7°	1·	
8	m	22	Str. c. Os.	Od.	$\frac{1}{11}$	$\frac{1}{6}$	9°	1·	Str. disappeared on dilatation of pupil Od.
				Os.	$\frac{1}{10}$	?	7°·5	0·41	
9	f	18	Str. c. Od.	Od.	$\frac{1}{20}$?	?	?	0·025	Could not fix
				Os.	$\frac{1}{24}$	?	9°	0·4	
10	f	16	Str. c. altern.	Od.	$\frac{1}{18}$	?	10°·1	1·	
				Os.	$\frac{1}{16}$	?	9°	1·	

Hm. signifies Hypermetropia manifesta.
H. signifies Hypermetropia totalis, after instillation of atropine.
A. signifies the angle between the line of vision and the axis of the cornea.
S. signifies the sharpness of vision.
Str. c. Od. signifies Strabismus convergens oculi dextri.
Str. c. Os. signifies Strabismus convergens oculi sinistri.
Str. c. altern. signifies Strabismus convergens alternans.
As. signifies Astigmatismus.
in H. signifies in the meridian of the minimum of the curve (as a rule horizontal).
in V. signifies in the meridian of the maximum of the curve (as a rule vertical).
? signifies not at all, or not accurately determined.

In case No. 8 there existed a permanent strabismus which, wonderful to relate, disappeared during the time when the pupil of the sharp-seeing right eye was dilated. The left eye then assumed a correct position, without there being any deviation of the right.

This table again shows what had been before manifest, viz., that as a rule the angle α for both eyes of the same individual is pretty nearly the same. For this reason, in the cases of No. 4, Od. and No. 9, Od., which in consequence of impaired vision did not fix, we in calculating the mean value for both eyes assumed that $\alpha = \alpha$ of the left eye. As mean we then obtained $\alpha = 7°{\cdot}63$. This exceeds, by but a very little, the mean of $\alpha = 7°{\cdot}3$ in non-squinting hypermetropic people; but here in order to

give a prominent place to the influence on the position of the centre of motion, particularly high degrees of hypermetropia were purposely selected, for which cause also the value of α is increased. In order to obtain, therefore, a better basis for comparison, the value of α was, moreover, determined in some cases of hypermetropic people, whose degree of hypermetropia was about the same that we meet with among squinters. The results are to be found in the following table:—

TABLE II.

Persons	Sex	Age	Eye	Refraction			A.	S.	Observations
				Hm.	H.	H?			
1	m	19	Od.	$\frac{1}{26}$	?	$\frac{1}{14}$	4°·5	0·85	Astig?
			Os.	$\frac{1}{28}$	$\frac{1}{16}$	$\frac{1}{16}$	3°·6	0·85	Astig?
2	f	50	Od.	$\frac{1}{12}$	?	$\frac{1}{13}$	5°	?	
			Os.	$\frac{1}{13}$	?	$\frac{1}{13}$	5°	?	
3	m	55	Od.	$\frac{1}{12}$	?	$\frac{1}{12}$	5°	?	
			Os.	$\frac{1}{12}$	?	$\frac{1}{12}$	5°	?	
4	m	60	Od.	$\frac{1}{28}$	?	$\frac{1}{60}$	5°·75	1·	
			Os.	$\frac{1}{26}$	?	$\frac{1}{50}$	5°·5	0·95	
5	f	21	Od.	$\frac{1}{36}$	?	$\frac{1}{12}$	6°·25	1·	
			Os.	$\frac{1}{36}$	?	$\frac{1}{12}$	5°·9	1·	
6	m	9	Od.	$\frac{1}{12}$	?	$\frac{1}{6}$	6°·5	?	
			Os.	$\frac{1}{12}$	?	$\frac{1}{6}$	6°	?	
7	m	14	Od.	$\frac{1}{16}$	$\frac{1}{6}$	$\frac{1}{6}$	7°	0·4	Astig.
			Os.	$\frac{1}{20}$	$\frac{1}{6}$	$\frac{1}{6}$	6°	0·32	Astig.
8	m	62	Od.	$\frac{1}{6}$	?	$\frac{1}{7}$	7°	0·25	
			Os.	$\frac{1}{6}$	?	$\frac{1}{7}$	7°	0·25	
9	f	13	Od.	$\frac{1}{24}$	?	$\frac{1}{7}$	8°·5	1·	
			Os.	$\frac{1}{20}$	?	$\frac{1}{6}$	8°·75	1·	
10	m	36	Od.	$\frac{1}{24}$	?	$\frac{1}{11}$	8°·8	1·	
			Os.	$\frac{1}{24}$	?	$\frac{1}{11}$	9°·2	1·	
11	m	21	Od.	$\frac{1}{10}$	?	$\frac{1}{6}$	9°	0·9	
			Os.	$\frac{1}{10}$	?	$\frac{1}{6}$	9°	0·9	

The column marked H? gives the total hypermetropia as it has been valued in young individuals.

In the first place, then, we find, in these non-squinting hypermetropic people that the angle α has a mean value of 6°·56, viz., 1°·7 less than in those with squint; secondly, it is very evident that the degree of hypermetropia has some influence on the angle α. The comparison of the value of this angle, with its ascertained mean value in high degrees of hypermetropia, viz., 7°·3, is sufficient to show this; but it appears still more distinctly in Table, II., where the individuals are arranged according to the magnitude of α; and from column H?, wherein the probable degree of hypermetropia at fourteen years of age has been estimated. It immediately strikes one that the latter keeps pace pretty evenly with α. In estimating H? I used, with the due allowance for age, the already known Hm., and sometimes also H; the results can differ but very little from the real value.

The result then is that in equal degrees of hypermetropia, a high value of the angle α predisposes more particularly to strabismus. To this result I attach more than ordinary importance, because it is thereby proved, that the angle α, of greater value in hypermetropic people, cannot, as a general rule, be neglected when one studies the connexion that exists between hypermetropia and converging strabismus.

In the most developed forms of hypermetropia, strabismus is seldom observed; this need not surprise us. In them we have the faculty of accommodation insufficient (even in cases of abnormally increased convergence) to produce perfect images, and consequently one is much more likely to adopt the plan of gaining correct ideas from imperfect representations than to improve these by a maximum of effort. We have seen above that strabismus is chiefly found in moderate degrees of hypermetropia These cases belong to relative hypermetropia. The eye can adapt itself for parallel and even for diverging rays, and can even preserve the accommodation for some time, but only by means of a convergence of the lines of vision on a point situated nearer to the eye than that from which the rays proceed. The minimum of hypermetropia at which strabismus begins, depends, without doubt, partly on the value of angle α, and partly on the extent of accommodation. The smaller the latter, and the larger the former—the smaller will be the degree of hypermetropia necessary to produce squint; but the diminution or total loss of accommodation no more brings on strabismus than the feebleness of accommodation, the consequence of advancing years, does.

With regard to external causes, we often hear mentioned the fixing of the eyes on near objects, particularly those having an oblique direction, such, for example, as a feather in the nurse's cap, the flame of a candle, and so on. It will by this be sufficiently evident, that I attach but little importance to these notions; at least, I am persuaded that the emmetropic eye will never, by such means, be taught to squint. However, I would not assert so positively, that in the hypermetropic eye there would be no danger in such things—the fixing of the eye on objects having an oblique direction might especially exercise some influence on it. In such cases it often happens that the point fixed on may be seen by but one eye, whilst the field of vision of the other is limited by the nose; and when the one eye only sees an object then the second eye misses a guide to direct its movements, and there is, therefore, nothing to hinder it, if hypermetropic, from converging too strongly in order to see distinctly. It cannot, I think, be denied, that in this way the rectus internus might acquire a certain preponderance which would pave the way for a further development of strabismus.

I have already observed that squinting varies both in kind and in form, according to its etiology and according to the affection of which it is the result, and with which it makes its appearance as a pathological

whole. This applies, in every respect, to strabismus, the consequence of hypermetropia. Since, then, this form of converging strabismus is the most common—the typical form one might say—it is very natural that what has been written on strabismus in general should answer here. Let me be allowed to give a brief sketch of it; and in doing so I shall be obliged to mention many well known facts; but in this way I shall the better find an opportunity of adding some further remarks on the nature, symptoms, and pathogeny, of this affection.

Converging strabismus, the result of hypermetropia, seems, for the most part, to manifest itself about the fifth year, probably because the effort to acquire a sharp distinct vision commences then to develop itself; moreover, the accommodation is then sufficiently strong to overcome the hypermetropia, by a somewhat increased convergence, with ease. Little faith, as a rule, is to be placed in the stories respecting its appearance at or shortly after birth, in consequence of convulsions or other diseases. As an exception to the above, it is sometimes met with after the seventh, up to the eighteenth, year, without any appreciable cause existing. At first the deviation is transient, being intimately connected with the act of fixing—that is with the effort to acquire distinct vision; sometimes it is only found when the eye is fixed on some near object, disappearing when the stare is over or the eyes are closed. This is the so-called periodic squinting which, by some, is described as a particular stage. In this stage, even when squinting develops itself for the first time, so late as the sixteenth or eighteenth year, no complaints about double vision are heard. This, in my opinion, is accounted for by the fact that the deviation arises only by reason of an effort to obtain a distinct image of a certain object. The attention is concentrated upon this object; its duplicate lies in the deviating eye outside its yellow spot; and for that reason alone must show itself indistinctly—so that, in presence of the object directly stared at, it is not easily seen as a double image—while on the yellow spot itself there appears the image of some totally different object with which the person has nothing whatever to do, and from which, consequently, he can the more easily abstract himself. Sometimes this form of the so-called periodic squint lasts a very long time; or, as regards the seeing of near objects, even permanently.

Stoeber[17] and Arlt[18] have each described a remarkable case of this kind, the cause of which, however, must have remained unknown to them. Arlt's case is particularly instructive, because in it the squinting was brought on voluntarily in order to guard against the asthenopia which showed itself in binocular vision of near objects. A similar instance came beneath my notice a short time since, in the case of a girl of eleven with hypermetropia $\frac{1}{16}$ of the right and $\frac{1}{10}$ of the left eye; with convex glasses,—$\frac{1}{14}$—strabismus was absent. Such cases sometimes lose subsequently the ability to squint. Convergence is a peculiar form of movement

which the will cannot sometimes discover, although its mechanism is very easy. It is not every one who, by turning one eye outwards, can bring the other deep into the inner corner, so as to be, on that account, in a condition to converge strongly. Many people are quite unable to do it. This I have found the case in myopic people, with very slight diverging strabismus, who had for some time given up binocular vision; and I am persuaded, that if they only tried it again more frequently, they would again attain to it. It would, however, bring them no advantage (see "On Strabismus Divergens"). The finding of certain muscles which we are not in the habit of using with a distinct object is often troublesome, but it will succeed if frequently tried. Thus, I can bring into play my frontalis, occipitalis, and several of the muscles of the ear; and I so have seen Professor Horner, of Zurich, contract, by itself, the musculus Horneri, and I have also succeeded in doing the same, although only after two days of fruitless labour. Many people cannot make their eyes converge save for the purpose of seeing binocularly some distinct object; but even such will at last succeed in doing so if they only attempt it frequently. The straining of the muscles in the act of convergencc is evidently quite different from that which takes place when the one eye, holding the same position, the other looks outwards. But of this hereafter.

(*To be continued in next Number.*)

CLINICAL RECORDS.

Cases of Gastric Ulcer.[a] By Balthazar Walter Foster, Assistant Physician and Senior Demonstrator of Pathology to the Queen's Hospital; Lecturer on Practical Anatomy in Queen's College, Birmingham.

Case I.—Mary Jeffries, aged twenty-three, single, formerly a domestic servant, but has worked during the last six months in a cap warehouse, presented herself in the out-patients' room of the hospital on February 6th. As she entered her gait was noticed to be unsteady, and after an effort to stand, she dropped exhausted into a chair. Her countenance was extremely pale, and her lips exsanguine. On inquiry it was found that she had vomited blood in large quantities about one hour previously, so she was at once admitted as an in-patient.

She states that she enjoyed good health till about three years ago, when one day while at work she was seized with a violent pain in the epigastric

[a] Part of a Clinical Lecture delivered at the Queen's Hospital, Birmingham.

region; the pain passed off after a week or so, during which time she had some medical treatment. She felt nothing more of it for about three months, when the pain returned, and has continued more or less ever since. It was of an aching, gnawing character, and situated just below the ensiform cartilage, a little to the left side. It came on usually about fifteen or twenty minutes after taking food, and she observed that it affected not only her stomach, but also her back, and ran up between the scapulæ towards the left side. She frequently experienced eructation of sour fluid which "set her teeth on edge." No vomiting, however, occurred; her bowels were at this time, and have been ever since, very obstinate. The catamenia did not cease, but she felt herself much weaker; she gradually lost her colour, and occasionally was subject to palpitation and headache. For some four months previous to her appearance at the hospital she had attended the General Dispensary with much temporary benefit. On the morning of her admission she felt, before going to her work, low and faint, and ate scarcely any breakfast; on her arrival at the warehouse she was attacked by the vomiting of blood, and lost, she states, nearly two quarts.

Symptoms on admission.—Patient very weak and faint, countenance almost hueless; expression anxious; pulse small, weak, and at times almost imperceptible; heart sounds normal, lungs healthy, vertigo on attempting to rise, and slight headache; tongue a little furred, very pale in colour; great thirst is felt, and nausea. Pain seated in epigastrium, a little to the left side of, and below the ensiform cartilage; slight pressure increases it; pain also felt across the back and between the shoulders; pain is of a burning, gnawing, aching character; no tumour to be detected in the epigastric region; liver and spleen normal in size; urine pale-coloured, but healthy.

Treatment.—She was ordered to keep her bed, and to have ice to swallow; to be perfectly quiet, and to eat no food whatever. Contrary to orders, she got out of bed in the evening, and, as she attempted to pass across the ward, the hematemesis returned, and nearly a quart of bloody fluid was vomited. Ordered to be kept perfectly quiet, to use the ice, and to take, every second hour, half an ounce of a compound of two drachms of gallic acid, dissolved in eight ounces of water. On the following morning the hemorrhage again came on; and on the same evening she vomited, for the fourth time, about a quart of bloody fluid; two drachms of diluted sulphuric acid were now ordered to be added to her mixture; this checked the hematemesis, and it did not recur. She took this mixture for four days, being nourished, in the meantime, by small quantities of milk and beef tea. On February 13th she was ordered to have nutritive enemata every four hours, and to cease taking anything whatever by the mouth. She was, at this time, very weak and exhausted, and complained of the pain in the epigastrium, and also of a sensation of nausea and pain after

taking food. The enemata were continued till February 18, and then discontinued because they caused much pain and irritation to the gut. The enemata consisted of beef tea, milk, and occasionally contained the yolk of an egg; to them I also added, from time to time, small doses of tincture of opium.

February 18th.—Patient expresses herself much better, and even stronger than before she had the injections; no pain has been felt in the region of the stomach for three days; ordered milk as diet, and to take with each ounce half an ounce of lime water.

20th.—Very much improved, has felt no pain in the stomach, nor can any be occasioned by moderate pressure; allowed a little arrow-root.

22nd.—Still improving; as her bowels had not been opened for some time she was ordered, in my absence, five grains of extract of colocynth with three of mercurial pill.

24th.—Pills have acted, and have had no unpleasant effects; patient much better; allowed sago pudding.

29th.—Improving; ordered four grains of the citrate of iron and quinine, in infusion of calumba, twice a day.

March 9th.—Has had no return of pain; feels much stronger since taking the mixture; ordered a little fish and jelly, also allowed an egg.

18th.—Dismissed quite well.

Case II.—Maria Lygins, aged thirty-one, formerly a domestic servant, but now married, was admitted into the hospital, under my care, on February 9th. She complained of frequent vomiting, and severe pain in the epigastric region. She states that she has never been quite well for the last nine years, but has always had more or less pain in the epigastrium. The pain always came on about ten minutes after taking food, and was of a dull, heavy, burning character. She has had frequent pyrosis, and pains in her bowels; her family, with the exception of one brother, who died from symptoms similar to her own, have always been healthy. The catamenia have been irregular from time to time during her illness; for the last six months, however, they have been more regular, though small in quantity, and pale coloured; she has occasionally been relieved by medical treatment, but never permanently.

Symptoms on admission.—Expression of face, anxious; countenance evidently much paler than natural; body, emaciated; pulse regular, 75, small and weak; sounds of heart, healthy; feet, usually cold; lungs, healthy; breathing, natural, but quickened whenever epigastric pain comes on; tongue, furred and moist, often has a very sour taste in her mouth; appetite very bad, in fact, she is afraid to eat on account of the pain which the ingestion of food causes. The pain is of a dull, burning, gnawing character, and its point of greatest intensity is about one and a-half inches to the left of the extremity of the ensiform cartilage. It

comes on about ten minutes after eating, and continues till the food is vomited. The pain is also felt across the back, and runs up between the shoulders; this dorsal pain sometimes alternates with the epigastric pain. The matters vomited have of late been often streaked with blood; she has also noticed that of late her stools have been black and tarlike. The strictest examination can detect no tumour in the epigastric region, which is, however, very tender on pressure; and even a dress of ordinary tightness causes her much pain. She is often troubled with flatulence, and her bowels are usually obstinate.

Liver, normal in size; no enlargement of spleen to be detected; urine, high coloured and scanty, containing lithates.

Treatment.—As I did not see the patient during the first few days after her admission, she had merely an alkaline mixture; and, as her bowels had not been moved for several days, a purgative draught. Her bowels were moved after some difficulty, but no improvement in the pain followed, and scarcely any in the vomiting. The irritability of the stomach decreased, however, somewhat while she was kept on milk diet.

On February 29th I ordered her to be supported wholly by nutritive enemata of beef tea and milk, given four or more times a day, and to strictly observe the recumbent posture.

March 3rd.—She feels much better, the pain having nearly altogether disappeared; she complains of thirst, but does not feel hungry.

6th.—Pain quite gone, feels rather faint at times, but is wonderfully strong, and does not at all complain of hunger; ordered to take one ounce of milk four or five times a day, with two drachms of lime water.

9th.—Nutritive enemata stopped, and milk, arrow-root, and corn flour pudding ordered for her in small quantities.

14th.—Food has been increased gradually since last note, and the patient is gaining strength; says she feels much better, has no pain in stomach at any time, has felt a little in the back to-day; ordered four grain doses of citrate of iron and quinine, in infusion of calumba, twice a day.

19th.—Much better; pain in back, complained of on last visit, appears to have been connected with the menses, which have since appeared.

24th.—Patient has now quite recovered, and is only now and then troubled with occasional flatulency; discharged.

The treatment adopted on the admission of the first patient, was, of course, directed to the hemorrhage from the stomach; and after this had ceased, the case was placed almost in a similar position to the second. In each we had an ulcerated surface on the mucous membrane of the stomach, which it was our great object to heal, or rather to assist nature in healing. In all injuries we find nature ever ready to cure, her tendency to repair only being checked when disturbing causes exist; and, as Mr. Hilton observes, in his "Lectures on Rest and Pain"—"this tendency

becomes most conspicuous when a disturbing cause has been removed." In the cases before us nature had tried to repair the lesions over and over again, and was endeavouring to do so still; but what she accomplished with one hand at one time, she, Penelope-like, swept away with the other hand at another time.

Whenever the stomach was empty nature worked hard to heal the breach of surface; but food had to be taken, and in the process of digestion all efforts at repair were swept away. This process of digestion, essential though it was, interfered in several ways with the healing of the ulcers. These modes of interference and disturbance we may arrange as follows, viz.:—

1st.—The movements and great change in volume of the stomach necessitated by the ingestion of food.

2nd.—The mechanical and chemical irritation to the ulcer produced by the food.

3rd.—The solvent action of the gastric juice on the fresh lymph poured out for the repair of the ulcer, and on the weakened tissues forming its periphery and base.

The ulcers then were prevented healing by the very functions which it was the duty of the membrane on which they were seated, to perform; and when we consider the grave character of the disturbing causes, and the frequent repetition of the irritation, we cannot so much wonder that in such cases the ulcers are very difficult to heal, as that they ever heal at all. Let us for a moment consider what we should have done for an ulcer seated on the surface of the body, and subjected to the same obstacles to healthy repair; assuredly we should have made the effort, almost at any cost, to relieve the ulcerated surface from irritations so prejudicial to it. In the pain caused by the movement of the part, and by the contact of irritating substances, we should have recognised the voice of nature crying for rest, and should have procured that rest by removing all causes of disturbance; then healing would have gone on quickly, and nature would soon have restored the healthy condition of the part, for rest is as essential to repair as it is to growth. Growth, we only see proceed favourably under rest, and when that rest is not given, or is broken, we have always an arrest of development. So it is with repair, which is growth directed, not to the full development of the body, but to the restoration of injured portions of it. The same principles then that would have guided us in the treatment of the surface-ulcer, should also regulate our proceedings in the case of an ulcer of stomach; and our chief indication in such cases, I hold to be, the removal of all conditions interfering with the mechanical and physiological rest of the organ.

In the treatment of the cases before us I followed out this indication, and procured rest for the stomach by stopping the ingestion of all food, giving the stomach, in fact, no work to do at all; and, at the same time,

cutting off all the sources of irritation. But, in the meantime, the system had to be supported, and materials for repair afforded. Nutriment could not be given by the mouth for the reasons stated, and therefore we had to rely upon the absorbing power of the rectum to take up the nutritive matter. This the lower gut did, in both cases, very satisfactorily, for its absorbing power, for many materials, is even more active than that of the stomach.[a] The first patient was supported by nutritive enemata alone for four days, even at a period when, from the excessive exhaustion consequent on the copious hemorrhage, the treatment seemed hazardous; but seemed only, for the enemata afforded her sufficient nutriment; and far from feeling more exhausted, our patient actually rallied a little day by day. This, at first sight appears surprising; but we must recollect that the bodily waste was reduced to the minimum by the perfect rest observed, and great relief was felt from the cessation of the wearing and exhausting pain in the stomach. At the end of the four days, as the enemata had caused some irritation about the lower part of the rectum, they were discontinued, and the patient fed on milk, mixed with lime water. Beef tea, and, by degrees, the lightest kinds of solid food were allowed, and thus the patient gradually brought back to her ordinary diet. From the commencement of the treatment the pain disappeared, and during all the time of her fasting did not annoy her at all. Up to the time of her discharge no pain had been felt, in short, no unpleasant symptom marred the slow and sure progress she made towards health; no pain in the epigastric or dorsal region, even on pressure; no vomiting, no pyrosis, troubled her. The patient still continues well, and shows herself from time to time on my out-patient days.

In the second case the same treatment was adopted, and the patient was kept five days without any nourishment by the mouth, being wholly supported by nutritive enemata. After the first day the pain began to disappear, and, by degrees, left her altogether. During her long fast she felt low and weak at times, but not very hungry; and she bore her protracted abstinence with wonderful patience. Neither the pain or the vomiting have recurred; her food is taken with comfort, and she expresses herself better than she has felt for years; flatulence, to which she has been always subject, annoys her occasionally.

This method of treatment, which has been carried out with such benefit in these cases, is what I would advise in all similar cases. It recommended itself to me some years since, and I have ever since, more or less, advocated it, recognizing the great fact, that in all such cases our treatment should be simply an observance of the road which nature points out to us. The efforts which the stomach makes to get rid of all ingesta by vomiting, and the pain which they occasion, tell us, in the

[a] *Vide* Experiments by Mr. Savory, in Lancet. 1863.

loudest voice, that rest is what the injured organ wants—rest from all mechanical irritation, and rest from all physiological action. In the case of a surface ulcer, we should at once recognize the warnings, and obey; let us then listen to them with equal regard in all lesions of the internal organs. The ordinary treatment, by dietary, does not completely fulfil the indications pointed out, for, although it avoids distending the stomach, and irritating it by much food, yet it still stimulates it to secrete gastric juice, and this secretion not only requires a certain amount of exercise in the organ, but also dissolves the materials being formed on, and irritates the surface of, the ulcer. In the treatment by enemata, on the other hand, the most perfect rest we can command is given to the diseased surface; and this rest will, I believe, most frequently heal the ulcer; and if it do not completely repair, will leave it in such an improved condition that a carefully regulated system of diet will perfect the cure. The plan of after-diet must be based upon physiological principles, for it must strictly forbid all substances irritating to the stomach, either by their properties, or slow digestibility—*e.g.*, animal food, hard and tough substances, hot drink, alcohol, &c., &c.

The blandest and lightest food is the best, and milk may be taken as an example of the most perfect nutrient substance; it may be given in small quantities, and frequently, diluted at first with lime water, to neutralize any acidity of the stomach. As the patient improves, arrow-root, macaroni, tapioca, and wheat-flour may be added; and, after a time, vegetables in small quantities, and lastly, fish; and thus the return to animal food most carefully guarded. The great importance of the strictest attention to diet, will, at once, be recognized, when we consider how easily the newly-made tissue, forming the cicatrix of the ulcer, might be irritated and dissolved by the ingestion of hard and indigestible food. To the enemata I added, occasionally, a few drops of tincture of opium, and I also gave the drug occasionally during convalescence; it is of great value in these cases in allaying the irritation of the mucous membrane, in checking the waste of the tissues, and in acting as a nerve tonic.

Towards the period of convalescence I prescribed citrate of iron and quinine, a preparation, which, from its mildness, is particularly suited to these cases, as well as from its tonic effect on the mucous membrane, and the system generally.

LONDONDERRY CITY AND COUNTY INFIRMARY, AND CITY FEVER HOSPITAL.

REPORT FOR 1863.

By T. H. BABINGTON, M.D., T.C.D., *Surgeon to the Infirmary.*

Return of Patients Admitted into the City and County of Londonderry Infirmary during the Year 1863.

Remaining under Treatment 1st Jan., 1863,	54	
Admitted,	671	—Total, 725
Discharged cured or relieved,	586	
,, incurable,	4	
,, at own desire,	34	
,, irregular,	6	
Died,	35	—Total, 655
Remaining 1st January, 1864,		54

Number of Beds in Hospital—Male, 48; Female, 24.

City of Londonderry Fever Hospital.

Remaining 1st January, 1863,	16	
Admitted,	169	—Total, 185
Discharged cured,	150	
Died,	13	—Total, 163
Remaining 1st January, 1864,		22

Average Cost of Hospital and Fever Patients, including all expenses,	£2	6	9
Average Cost of Hospital and Fever Patients, exclusive of Salaries, Wages, and Annuity, amounting to £507 15s. 10d.,	1	15	7
Daily Cost of each Patient, including all expenses,	0	1	10
Daily Cost of each Patient, exclusive of Salaries, Wages, and Annuity, amounting to £507 15s. 10d.,	0	1	4¾

Total number of Days passed by Patients in Hospital,	18,727
Total number of Days passed by Patients in Fever Hospital,	4,482—23,209
Average number of Days passed by each Patient,	25·53

Numerical Abstract of Cases of Accidents, Diseases, and Deaths, for Year 1863.

ACCIDENTS.	No.	Died.
Burns and Scalds,	10	
Dislocation of Ankle,	3	
,, Clavicle,	1	
,, Elbow,	2	
,, Humerus,	4	
,, Hip,	1	
Fracture of Acromion,	1	
,, Fore-arm,	7	
,, Humerus,	3	
,, Clavicle,	1	

ACCIDENTS.	No.	Died.
Fracture, Compound, of Hand	2	
Fracture of Leg,	8	
,, Compound of Leg,	2	
,, Comp., of Olecranon,	1	
,, of Thigh,	4	
,, of Ribs,	4	
Injuries of Head,	6	1
Wounds, Contusions, and Sprains,	50	1

DISEASES.	Cases.	Died.
Abscess,	14	
Anemia,	6	
Apoplexy,	1	1
Albuminuria,	6	3
Asthma,	3	
Bronchitis,	40	4
Cancer of Breast,	3	
,, of Face,	4	
,, of Lip,	6	
,, of Lower Jaw,	1	
,, of Lung,	1	
,, of Nose,	1	
,, of Penis,	2	
,, of Tongue,	1	
Catarrh,	11	
Cynanche,	4	
Club Feet,	2	
Diabetes,	1	
Diseases of Brain,	11	3
,, of Eye,	33	
,, of Bones and Joints,	17	1
,, of Heart,	6	2
,, of Stomach, &c.,	65	3
,, of Testicle,	8	
,, of Uterus,	10	
Dropsy,	10	2
Dropsy, Ovarian,	1	
Epilepsy,	2	
Erysipelas,	4	
Epistaxis,	1	
Fistula in Ano,	1	

DISEASES.	Cases.	Died.
Fistula in Perineo,	1	
Gangrene of Legs,	2	
Gonorrhea,	10	
Hare Lip,	2	
Hydrocele,	2	
Hernia,	8	1
Hemorrhoids,	3	
Frost Bite,	1	
Intoxication, excessive,	1	
Nevus,	1	
Neuroma,	1	
Onychia Maligna,	1	
Paraphymosis,	4	
Phthisis,	32	10
Pleuritis,	3	
Pneumonia,	4	
Pleurodynia,	13	
Polypus of Nose,	1	
,, of Uterus,	1	
Rheumatism,	53	
Retention of Urine,	6	
Retroversion of Uterus,	2	
Sea Sickness, excessive,	1	
Skin Diseases,	40	
Struma	13	
Syphilis,	23	
Tumours,	5	
Tetanus,	3	3
Whitlow,	4	
Ulcers,	44	
Fever Cases	185	13

OPERATIONS.	No.
Amputation of Thigh, for Diseased Knee,	1
Amputation of Arm, for Gun-shot Wound,	1
Amputation of Penis, for Cancer,	2

OPERATIONS.	No.
Removal of Cancerous Lips,	3
Amputation of Fingers, for Injuries in Machinery,	10
Operation for Hare-lip,	1
,, for Strangulated Hernia,	1

Obituary Notices.[a]

AGAIN it is our professional duty to have to record the inroads which death has made amongst the members of the medical profession in this city, and briefly to review the services of those of our professional brethren whose loss we deplore.

LEONARD TRANT, F.R.C.S.I.,

Died March 1, 1864, *Aged* 66 *Years.*

On the 1st of March Mr. TRANT died, aged 66 years, after a few days illness. He and his coachman, who had lived with him upwards of twenty years, both got cold during one of the severe days we had at the end of February, and both died after a few days' illness; the servant attended his master till death made his services no longer needed, and then himself died the day after the master he had served so long and so well. Mr. Trant was highly respected. Some years ago he filled the office of President of the College of Surgeons. He was surgeon to Cork-street Hospital, and he was the inventor of two most valuable and ingenious instruments—a knife for hernia and an aneurism needle for applying the ligature to deeply-seated arteries.

THOMAS BRADY, M.B., F.K.&Q.C.P.,

Professor of Medical Jurisprudence, T.C.D., Died March 16, 1864, *Aged* 62 *Years.*

The final illness of Dr. THOMAS BRADY was also short, but for some time he had not been in good health—a colleague of Mr. Trant's in the Cork-street Fever Hospital, to which he was one of the physicians, he did not long survive him. He was the Professor of Medical Jurisprudence in the Medical School of the Dublin University, but he was chiefly known to the profession by his translation of Fournet's Treatise on Auscultation, his own essay on the treatment of aneurism, after the method of Valsalva, and his reports of the Cork-street Fever Hospital.

ROBERT MAYNE, M.B., F.K.&Q.C.P.,

Died April 7, 1864, *Aged* 53 *Years.*

In the full vigour of bodily health, with a mind stored with the accumulated experience of years of close observation, ROBERT

[a] It will be observed that, in the list in our last Number, of medical men, who have recently died in Dublin, the name of Montgomery is given twice, having in one place been substituted for that of Neligan, which was omitted.

Mayne fell a sacrifice to the conscientious discharge of his hospital duties; and the untimely death of this accomplished physician adds another name to the long and melancholy list of our profession who have died of typhus fever.

Dr. Robert Mayne was the son of Robert Mayne, who married Sarah Crawford, daughter of the Rev. Charles Crawford, vicar of St. Mary's, Drogheda. He was born March 11th, 1811, in the house of his grandfather, Captain Robert Mayne, R.N., who married one of the daughters and co-heiresses of William Waller, of Allenstown, an ancient family in the County Meath.

Educated in the Drogheda Grammar School he evinced at an early age a decided partiality for the profession of which he became so distinguished a member; and whilst yet very young attended the practice of the Drogheda infirmary, where he received his earliest lessons in hospital practice from Dr. Pentland, one of our most distinguished provincial surgeons, for whom, up to the latest period of his life, he entertained feelings of the warmest affection.

In 1827 he entered Trinity College, and the year following became an apprentice of Dr. Thomas Beatty's, at that time one of the Professors in the Royal College of Surgeons. During the violent outbreak of cholera in 1831 and 1832, he was actively engaged, along with Drs. Pentland, Delahoyd, and others, in attending the crowded wards of the Cholera Hospital in his native town; and there are not a few who can testify to the devotedness and courage with which this young pupil ministered relief to those who were stricken down with what was then very generally considered to be one of the most infectious, as it always has been admitted to be, one of the most fatal and appalling of the diseases which afflict humanity. Believing, as we do, that the characters of men do not change, but only develop with more mature years, we can see in Robert Mayne's early life that conscientiousness and strong sense of duty for which he was ever afterwards distinguished. For two years (1833, 1834) he enjoyed the privilege of being resident clinical clerk in the medical hospitals of the House of Industry, of which Dr. John Crampton was one of the physicians, "to whose instructions," writes Dr. Mayne himself, "I am indebted for my first knowledge of the use of the stethoscope." In that great hospital establishment he laid the foundation for his future fame as a physician, and we may judge of his powers of original observation by a paper on Pericarditis, the result of his experience

whilst residing in the hospital, and published in this Journal[a] whilst he was yet a pupil. It is entitled "Observations on Pericarditis, by Robert Mayne, late Clinical Clerk to the Medical Hospitals of the House of Industry. [Read before the General Medical Society, January 10th, 1835.]" Of this communication it has recently been said with truth that it exhibited an amount of originality and research which would have done credit to a physician of twenty years' standing.

In 1836 Dr. Mayne obtained his diploma from the Royal College of Surgeons, and in 1838 became an M.B. of Trinity College. The session of 1836-37 found him lecturing on anatomy in the Richmond Hospital School of Medicine, and thus commenced his connexion with that institution, which only terminated with his life. At that time, and for several years subsequently, the anatomical department of this school was conducted with great vigour; and never, probably, was this important branch of medical education better taught than whilst Mayne and Power gave, conjointly, the anatomical course: for whilst, as lecturers, both were distinguished for great clearness of arrangement, with unusual fluency of language, they knew equally how to give that practical application to each subject without which anatomical lectures lose so much of their usefulness.

Dr Mayne at this period engaged as ardently in the study of anatomy as, at a later period, in that of subjects more directly connected with practical medicine. The museum of the Richmond Hospital, now the Carmichael School of Medicine, abounds with preparations which exhibit his handiwork (we would refer more particularly to a very complete series which illustrate the comparative anatomy of the nervous system); whilst the articles which he contributed to Todd's *Cyclopædia of Anatomy*, viz., "The Anatomy and Physiology of the Optic Nerves," and "The Surgical Anatomy of the Perineum," are admirable examples of what anatomical and physiological writings should be.

We linger over these early years of our dear friend's professional life; for, although they were years of great and continuous labour, we believe they were accompanied by less of that wear and tear—of that exhaustion of physical and mental power which attended his subsequent career.

In 1845 he was elected Physician to the South Dublin Union

[a] First series, Vol. vii., 1835.

Workhouse, and entered upon a field of labour as extensive as it was trying. Not unfrequently each medical officer in these vast hospital establishments of our city has from 400 to 600 sick poor under his own immediate care, the majority, no doubt, labouring under chronic affections, but, at the same time, requiring the supervision of the physician, who is directly responsible for the medical treatment and dietary of the entire number. Still, deducting these, there are always a very large number of acute cases under treatment, and greatly exceeding that which in other hospitals is entrusted to the care of each medical officer An average attendance of at least three hours daily, extended over several years, shows how conscientiously and devotedly Dr. Mayne discharged the duties of this appointment. During this period he noted all the more interesting and remarkable cases under his care, and made *post mortem* examinations in almost all the fatal cases; and the amount of mere manuscript matter thus collected attests the persevering and regular diligence with which he prosecuted this self-imposed task. He now commenced to have drawings of the more remarkable morbid conditions met with in these cases, executed by Connolly, whose faithful delineations of disease are so well known to the profession, and which, gradually accumulating from year to year, formed so large a collection as to enable him to illustrate very fully all the lectures he subsequently delivered on practical medicine.

His labours in the workhouse hospitals, at all times very severe, became even more arduous when epidemics, which seem to spring up naturally, as it were, in these large institutions, developed themselves from time to time. In the epidemics of fever, of ophthalmia, and of dysentery, the mere physical labour he underwent must have been very severe. During the epidemic of dysentery, for example, which extended over several years from 1846, the writer of this imperfect memoir has heard his lamented friend say that he computed that he must at that time have seen and treated at least three thousand cases of that disease!

Having lectured on anatomy for seventeen years, Dr. Mayne succeeded, in 1853, to the Lectureship on Practice of Medicine, in the Carmichael School, vacant by the resignation of Dr. Corrigan, an appointment which he held up to the period of his death.

Of Dr. Mayne's literary labours, between 1843 and 1856, we find it difficult to give any accurate or detailed account. His papers have all, we believe, been published in this Journal, and in our present we publish a communication made to the Pathological Society

last year on Aneurism, which we held over at his request, as he intended to write an extended essay for us on the subject. He described the remarkable epidemic of cerebro-spinal meningitis, which visited Ireland in 1846, with admirable fidelity.[a] On dysentery he contributed what we believe to be the best practical essay[b] on that disease which is extant: the sequels of chronic dysentery, for example, as described by Dr. Mayne, form a new and previously unwritten chapter in the history of the disease. He also contributed a valuable paper on "Open Foramen Ovale,"[c] describing a case in which, contrary to what usually occurs, the arterialized blood of the left auricle passed through the abnormal opening in the septum to mingle with the venous blood of the right side of the heart—the result being, an over-oxygenated state of the blood throughout the body, giving rise to symptoms the very reverse of cyanosis, one of the most remarkable of which was extreme rapidity of respiration. One of the last and most interesting papers by Dr. Mayne is on varicose aneurism,[d] illustrated by coloured lithographic drawings, and which will always be an authority on the subject. Alluding to this paper, Dr. Stokes says that it is "eminently worthy of study, as affording an example of the accuracy of observation and logical deduction which distinguish the various memoirs with which Dr. Mayne has enriched our science."[e]

Of his communications to the Pathological Society we can speak even less in detail. From the formation of this society, in 1839, up to the present session, Dr. Mayne's contributions were amongst the most numerous, the most practical, and the most valuable. As a recognition of these services, as well as of the high estimation in which he was held by the profession, the Pathological Society elected him their President in last November.

It had long been the object of Dr. Mayne's ambition to succeed to the office of physician to some one of our metropolitan hospitals, and his rejection by the electors on the only occasion, when for many years a vacancy had presented itself, caused him extreme disappointment and mortification. In 1859, however, he was appointed physician to the Adelaide Hospital, and his duties, as visiting physician and clinical lecturer were thenceforth faithfully and efficiently discharged.

On either the 26th or 27th of March last the chilly feel of fever

[a] Dublin Quarterly Journal of Medical Science, Vol. ii.
[b] *Ibid.*, Vol. vii.
[c] Dublin Quarterly Journal of Medical Science, Vol. v.
[d] *Ibid.*, Vol. xvi.
[e] Diseases of the Heart and Aorta, by Dr. Stokes, p. 601.

first occurred, followed by a languor and a debility, against which he unfortunately struggled for three or four days. On the 30th March his Excellency the Lord Lieutenant attended to lay the first stone of the new school of medicine, founded by the munificence of that noble-minded surgeon, Richard Carmichael; Dr. Mayne felt himself too ill to attend, and the address to his Excellency, which he had prepared, was, in his absence, read by one of his colleagues, in his name; yet, in the evening of that day he made his way to the sick bed of his attached friend and former master, Dr. Beatty, whom he loved so well and so deservedly. Two days subsequently maculæ made their appearance. For several days, however, no alarming symptoms appeared. The pulse was under 100—the intellect clear—the disease uncomplicated. On the tenth day, however, there was increasing debility—dark petechiæ appeared on the surface, the pulse became feebler and more rapid; lethargy, tending to stupor set in, and death, unccompanied by any previous suffering, occurred on the morning of April 7th.

So passed away, ripe in fame but immature in years, one who had endeared himself to his professional brethren, without an exception, by the kindliness of his heart and the perfect integrity of his conduct. At the period of his death Dr. Mayne had attained a position of great eminence. He had steadily advanced in the confidence of the public, as well as in the estimation of his professional brethren, and the very highest position, as a consulting physician was almost within his reach. All this he owed entirely to his own indefatigable industry. He possessed a sound judgment, with a power of discriminating diseases proportional to his great experience, whilst the gentleness and amiability of his disposition endeared him to all who knew him. He had withal a modesty which shrank from any display, and, in all probability, he was himself the only one in the profession who did not clearly see how really eminent he had become. With these estimable qualities, we need not be surprised at the deep and painful impression which was occasioned by his death. Seldom has one died so deeply and sincerely regretted by all classes of society, and the numbers who followed his remains to their last resting-place attested how universally he was honoured and beloved

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Wilde, Sir W. R., knighthood of, 379—vital statistics by, *Rev.*, 379.
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Wright, E. P., translation by, of a memoir, by F. C. Donders, on the pathogeny of strabismus, 232, 480.

PERIODICALS WITH WHICH THE DUBLIN QUARTERLY JOURNAL IS EXCHANGED.

GREAT BRITAIN.

1. The British and Foreign Medico-Chirurgical Review. Churchill.
2. The Edinburgh Medical Journal. Oliver and Boyd.
3. The Retrospect of Medicine. Edited by W. Braithwaite. Simpkin and Co.
4. The Half-yearly Abstract of the Medical Sciences. Edited by W. H. Ranking, M.D., and C. B. Radcliffe, M.D. Churchill.
5. Pharmaceutical Journal. Churchill.
6. The Lancet.
7. The Medical Times and Gazette. Churchill.
8. Association Medical Journal. Honeyman.
9. The Medical Circular. Harris.
10. The Asylum Journal of Mental Science. Churchill.
11. The Glasgow Medical Journal. Mackenzie.
12. The Athenæum.
13. The Dublin Medical Press.
14. The Natural History Review. Williams and Norgate.
15. The Dublin Quarterly Journal of Science. M^cGlashan and Gill.

INDIA.

16. The Indian Annals of Medical Science. Calcutta: Lepage and Co.
17. Transactions of the Medical and Physical Society of Bombay.
18. The Madras Quarterly Journal of Medical Science. Madras: Gantz, Brothers.

AUSTRALIA.

19. The Australian Medical Journal, Melbourne: Wilson and Mackinnon.

AMERICA.

20. The American Journal of the Medical Sciences. Edited by Isaac Hays, M.D. Philadelphia: Blanchard and Lea.
21. The American Medical Times; being a Weekly series of the New York Journal of Medicine. New York.
22. The American Journal of Science and Arts. Conducted by Professors Silliman and B. Silliman, Jun., and J. D. Dana, &c. New Haven.
23. Charleston Medical Journal and Review. Charleston, U.S.
24. The American Journal of Insanity, Utica, N.Y. State Lunatic Asylum.

FRANCE.

25. Gazette Médicale de Paris. Paris.
26. Gazette Hebdomadaire de Médecine et de Chirurgie. Paris: Victor Masson.
27. Journal de Chimie Médicale, de Pharmacie, de Toxicologie, et Revue des nouvelles scientifiques, nationales et étrangeres, &c. Paris: Labé.

28. Journal de Pharmacie et de Chimie, &c. Paris: Victor Masson.
29. L'Union Médicale. Paris.
30. La Lancette Française, Gazette des Hôpitaux civils et militaires. Paris.
31. Revue Médicale Française et étrangère. Publié par le Docteur Sales-Girons. Paris.
32. Archives Générales de Médecine. Paris: Asselin.
33. Bulletin de l'Académie de Médecine. Paris: Baillière.
34. Mémoires de l'Académie de Médecine.
35. Revue de Thérapeutique Médico-Chirurgicale. Paris: Dr. A. Martin-Lauzer.
36. Journal de Médecine et de Chirurgie Pratiques a l'Usage des Médecines. Par Lucas-Cham-pionnère. Paris.
37. Journal des Connaissances Médicales et Pharmaceutiques. Paris.
38. Annales Médico-Psychologiques. Par MM. Baillarger, Cerise, et Moreau. Paris: V. Masson.
39. Bulletin Général de Thérapeutique, Médicale et Chirurgicale. Par le Docteur Debout. Paris.
40. Répertoire de Pharmacie. Par M. le Dr. Bouchardat.
41. Gazette Médicale de Strasbourg.
42. Journal de Médecine de Bordeaux.
43. L'Union Médicale de la Gironde. Bordeaux.
44. Annales D'Hygiène Publique et le Médecine Légale. Paris.
45. Gazette Médicale de Lyon. Dirigée par le Dr. P. Diday.
46. Journal de la Physiologie de l'Homme et des Animaux. Paris: Masson.
47. Montpellier Médical Journal mensuel de Médicine. Montpellier: Boehm et Fils.
48. Journal de Médecine Mentale. Par M. Delasiauve. Paris: Masson et Fils.

BELGIUM.

49. Mémoires et Bulletin de l'Académie Royale de Médecine de Belgique, Brussels.
50. Annales D'Oculistique. Brussels.
51. Annales et Bulletin de la Société de Médecine de Gand.

GERMANY.

52. Zeitschrift für rationelle Medicin. Herausgegeben Von Dr. J. Henle und Dr. C. v. Pfeufer. Heidelberg and Leipzig: C. F. Winter.
53. Vierteljahrschrift für die praktische Heilkunde, herausgegeben von der medicinischen Facultät in Prag. Prague: Karn André.
54. Canstatt's Jahresbericht über die Fortschritte der gesammten Medicin in allen Ländern. Redigirt Von Pr. Scherer-Pr. Virchow, und Dr. Eisenmann. Würzburg: Stahel.
55. Medicinisch-chirurgische Monatshefte, Kritisches Sammeljournal für praktische Heilkunde, Herausgegeben von Dr. F. E. Friedrich in München, Erlangen, Ferd. Enke.
56. Aerztliches Intelligenz-Blatt. Organ für Bayerns Staatliche und öffentliche Heilkunde. Munich: C. Kaiser.
57. Wochenblatt der Zeitschrift der k. k. Gesellschaft der Aerzte in Wein (Beilage zu den Jahrbüchern). Redigirt von A. Duchek, C. Langer, A. Schauenstein. Leipzig: Hinrichs.

PRUSSIA.

58. Archiv für pathologische Anatomie und Physiologie, &c. Herausgegeben von R. Virchow. Berlin: G. Reimer.
59. Archiv für Klinische Chirurgie. Herausgegeben von Dr. B. Langenbeck. Redigirt von Dr. Billroth, Prof. der Chirurgie, und Dr. Gurlt, Docent der Chirurgie in Berlin. Berlin: Hirschwald.
60. Allgemeine Zeitschrift für Psychiatrie und psychisch-gerichtliche Medicin. Herausgegeben von Damerow, Flemming, Roller durch Heinrich Laehr. Berlin: Hirschwald.

HOLLAND.

61. Archiv für die Holländischen Beiträge zur Natur-und Heilkunde, Herausgegeben von F. C. Donders, Utrecht, und W. Berlin, Amsterdam, Utrecht: C. Van Der Post.

NORWAY.

62. Norsk Magazin, for Lægevidenskaben. Udgivet af det medicinske Selskab i Christiania. Redigeret af W. Boeck. A. W. Münster. Lund: Voss. Christiania: Feilberg and Landmark.

SWEDEN.

63. Hygiea, Medicinsk och Farmaceutisk Manads-skrift. Stockholm.

DENMARK.

64. Bibliothek for Læger. Udgivet af Direktionen for det Classenske Literaturselskab. Redigeret af Dr. A. Brüniche. Copenhagen: Reitzels.

ITALY.

65. Bulletino delle Scienze Mediche. Publicato per cura della Società Medico-Chirurgica di Bologna.
66. Giornale Veneto di Scienze Mediche.
67. Lo Sperimentale ovvero Giornale Critico di Medicina e Chirurgia per sevire al Bisogni dell Arte Salutare. Direttore Prof. C. C. M. Bufalini. Florence.

BOOKS RECEIVED, MAY, 1864.

1. Three hundred consultations in midwifery. By Robert Lee, M.D., F.R.S., London: Churchill. 1864. Fcap. 8vo, pp. 217.

2. Functional diseases of women; cases illustrative of a new method of treating them through the agency of the nervous system, by means of cold and heat; also an appendix containing cases illustrative of a new method of treating epilepsy, paralysis, and diabetes. By John Chapman, M.D., M.R.C.P., &c. London: Trübner and Co. 1863. 8vo, pp. 74.

3. The stereoscope, and stereoscopic results. By Joseph Towne. Three pamphlets. Reprinted from Guy's Hospital Reports.

4. The restoration of a lost nose by operation, exemplified in a series of cases, illustrated with wood engravings. By John Hamilton, Surgeon to the Richmond Hospital, &c. London: Churchill. 1864. Royal 8vo, pp. 58.

5. Proofs of the non-existence of a specific enthetic disease. Addressed to the Secretary of State for War. By Dr. Macloughlin, M.D., &c. London: Churchill. 8vo, pp. 58.

6. The insane in private dwellings. By A. Mitchell, A.M., M.D., Deputy Commissioner in Lunacy for Scotland. Edinburgh: Edmonston and Douglas. 1864. 8vo, pp. 97.

7. An essay, historical and critical, on the mechanism of parturition. By W. Leishman, M.D., &c. London: Churchills. 1864. 8vo, pp. 129.

8. Mémoire sur la chromhidrose ou chromocrinie cutanée. Par le Dr. Le Roy de Méricourt. Suivi de l'etude microscopique et chimique de la substance, colorante de la chromhidrose. Par le Dr. Ch. Robin. Et d'une note sur la meme sujet. Par le Dr. Ordőnez. Paris: Baillière. 1864, 8vo, pp. 176.

9. De l'inosurie. Par le Dr. Gallois. Paris: Baillière. 1864. 8vo, pp. 61.

10. Insanity and crime; a medico-legal commentary on the case of George V. Townley. By the Editors of the Journal of Mental Science. London: Churchill. 1864. 8vo, pp. 47.

11. Phthisis and the stethoscope, or the physical signs of consumption. By R. P. Cotton, M.D., &c. Third Edition. London: Churchill. 1864. Fcap. 8vo, pp. 104.

12. Elements of physics or natural philosophy; written for general use in plain or non-technical language. By N. Arnott, M.D., &c. Sixth and completed Edition. Part I. London: Longmans. 1864. 8vo, pp. 401.

13. On paralysis and neuralgia, and other affections of the nervous system, and their successful treatment by galvanization and Faradisation. By J. Althaus, M.D., &c. Third Edition. London: Trübner and Co. 1864. Fcap. 8vo, pp. 236.

14. Biographical sketch of Sir Benjamin Brodie, late Sergeant Surgeon to the Queen, and President of the Royal Society. By Henry W. Acland, Reg. Prof. of Medicine in the University of Oxford. London: Longmans. 1864. Crown 8vo, pp.

15. The Census of Ireland for the year 1861. Part III. Vital statistics, Vol. I. Report and tables relating to the status of disease. Parliamentary report. 1863.

16. The prescriber's analysis of the British pharmacopeia. By J. B. Nevins, M.D. London: Churchills. 1864. 32mo, pp. 91.

17. A System of surgery. By James Miller, F.R.S.E., F.R.C.S.E. Edinburgh: Black. 1864. 8vo, pp. 1,387.

18. A vindication of present state of aural surgery. By a member of the new Sydenham Society. London: Churchills. 1864. 8vo, pp. 43.

19. A practical treatise on diseases of the skin of children; from the French of Caillault. Second Edition, with notes, appendix, and formulæ. By Robert H. Blake, M.R.C.S.E. London: Churchills. 1863. Post 8vo, pp. 331.

20 A manual of diet and regimen for physician and patient. By H. Dobell, M.D., &c. Churchill. 1864. Crown 8vo, pp. 36.

21. Excision of the scapula. By James Syme, F.R.S.E, &c. Edinburgh: Edmonston and Douglas. 1864. 8vo, pp. 35

22 A handbook of the practice of forensic medicine, based upon personal experience. By J. L. Caspar, M.D., &c. Vol. III., including the bio-thanatology of new-born children, and the first part of the biological division. Translated from the Third Edition of the original. By G. W. Balfour, M.D., &c., New Sydenham Society. London. 1864. 8vo, pp. 417.

23. Annals of military and naval Surgery, and tropical medicine, and hygiene, being an annual retrospect embracing the experience of the medical

officers of Her Majesty's armies and fleets in all parts of the world. Vol. I. for 1863. London: Churchill. 1864. Post 8vo, pp. 376.

24. Précis iconographique des maladies vénériennes. Par M. A. Cullerier, 6, Livraison, Paris. Méquignon Marvis. 1861. Fcap., 8vo, pp. 60.

25. Remarks on criminal responsibility in relation to insanity. By J. A. Symonds, M.D., &c. Fcap., pp. 20. Reprint.

26. Cases of tracheotomy in croup, with clinical remarks; and tracheotomy in diphtheritic croup. By James Spence, F.R.C.S.E., &c. Edinburgh. 8vo, pp. 9 and 8. Reprints.

27. The prescribers companion. By A. Meadows, M.D., &c. Renshaw, London. 1864. 32mo, pp. 152.

28. Annales de l'electrothérapie, revue des applications thérapeutiques de l'electricite et du magnétisme, de l'electrophysiologie de la pathologie nerveuse et musculaire. Par Le Docteur A. Tripier. No. 3. Janvier, 1864. Paris: Baillière et Fils. 8vo, pp. 80.

29. Handbuch der Lehre von den Knochenbrüchen. Von Dr. E. Gurlt Zweiter Theil. 1 Lieferung. Hamm: G. Grote. 1864. 8vo, pp. 368.

30. An elementary text-book of the microscope, including a description of the methods of preparing and mounting objects, &c. By J. W. Griffith, M.D., &c. With 12 coloured plates containing 451 figures. London: Voorst. 1864. Post 8vo, pp. 192.

31. The principles of surgery; clinical, medical, and operative. An original analysis of pathology, systematically conducted, and a critical exposition of its guidance at the bedside and in operations representing the principles of the earliest and most exact diagnosis, etiology, prognosis, and therapeutics, medical and operative. By Fred. J. Grant, F.R.C.S., &c. London: Churchills. 1864. 8vo, pp. 860.

32. The eighth annual report of the state of the united lunatic asylum for the county and borough of Nottingham, &c. J. Vice. 1864. 8vo, pp. 29.

33. The science and art of surgery, being a treatise on surgical injuries diseases and operations. By J. E. Erichsen. Fourth Edition, enlarged and carefully revised. Illustrated by 517 Engravings on Wood. London: Walton and Maberly. 1864. 8vo, pp. 1,280.

34. The ophthalmic review, a quarterly journal of ophthalmic surgery and science. Edited by J. Z. Laurence, of London, and Thomas Windsor, of Manchester. London: Hardwicke. No. I. April, 1864. 8vo, pp. 118.

35. Notes on the british pharmacopeia, showing the additions, omissions, change of nomenclature, and alterations in the various compound preparations, with the doses of those medicines which are comparatively new. By A. F. Haselden, Pharmaceutical Chemist. London: Hardwicke. 1864. Fcap. 8vo, pp. 82.

36. On the practice of employing certain substitutes for the genuine ingredients in some articles of daily food. By a Lady. London: Lewis. 1864. Pamphlet.

37. Cumberland and Westmoreland lunatic asylum annual report for 1863. 8vo, pp. 43.

38. The British journal of homeopathy. No. LXXXVIII.

NOTICES TO CORRESPONDENTS.

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